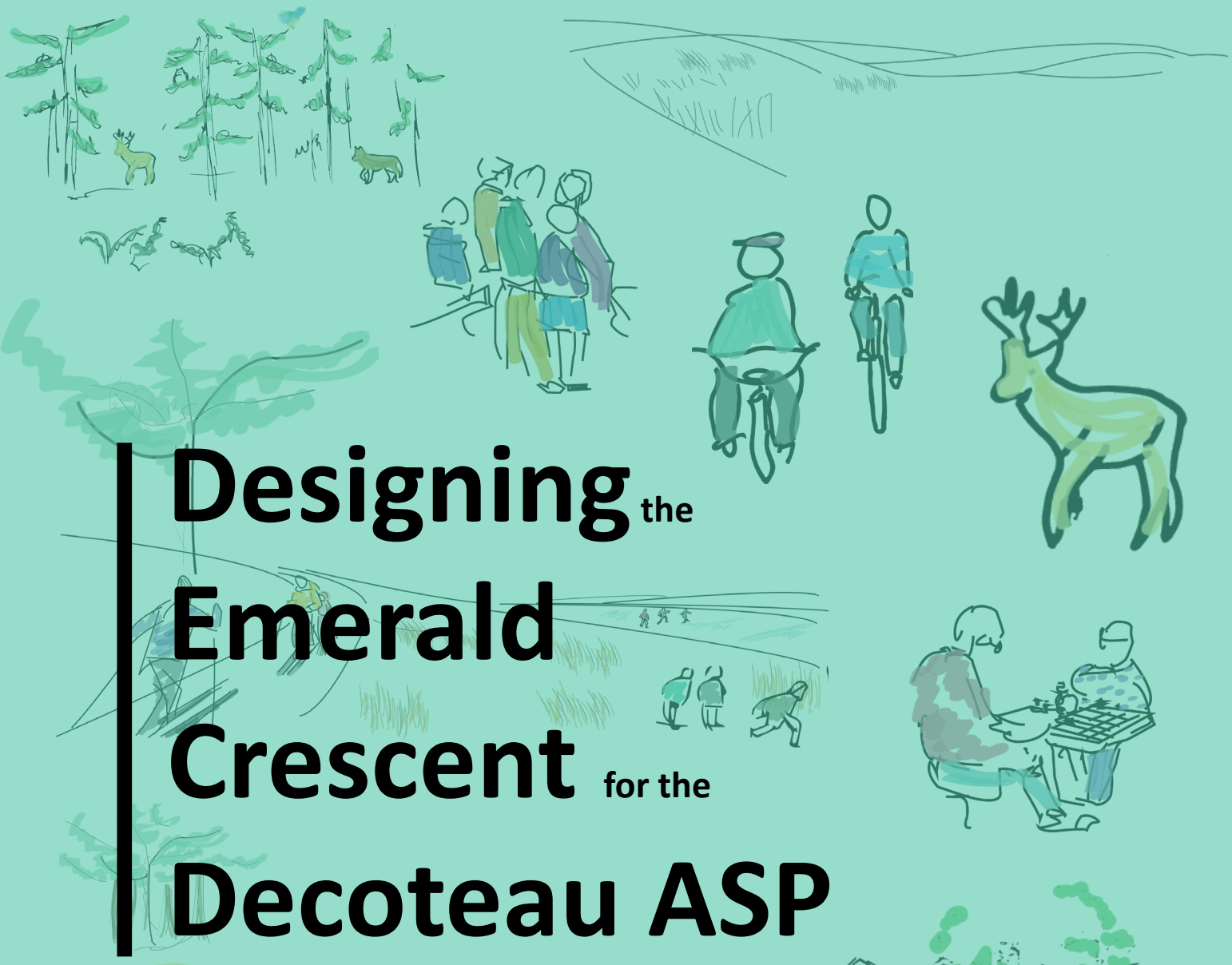

Designing the Emerald Crescent for the Decoteau ASP

Acknowledgements

The Designing the Emerald Crescent Studio Team would like to thank Professor Nina-Marie Lister for her valuable insight, perspectives and guidance throughout the course of this project.

We acknowledge and thank the Social Sciences and Humanities Research Council of Canada, *SSHRC*, for funding support for this studio as part of Professor Nina-Marie Lister's Partnership Development Grant in which the City of Edmonton is a partner. We would like to acknowledge the time and resources provided by the Ecological Design Lab and Marta Brocki, Project Manager, in making a site visit to Edmonton possible. The ability to travel to the Decoteau Area in order to connect with the site and local experts/stakeholders offered an enormously beneficial learning experience and greatly improved the project outcomes.

The Project Team is grateful to our clients at the City of Edmonton. We would like to extend our appreciation to Grant Pearsell, Suzanne Young, Michelle Ouellette, and Geoff Smith; thank you for the opportunity to take on this exciting project and for all the guidance and support provided throughout the term. In particular, we want to thank our mentors, Nathan Roth and Heather VanderHoek, for helping in countless ways throughout the project and for their assistance and hospitality during our visit to Edmonton. Thank you to Catherine Shier for helping us understand the ecological importance of the landscape.

The Project Team would also like to extend an important thanks to our Toronto-based mentors Jane Weninger, Kristina Reinders and Jane Welsh from the City of Toronto. Your insight and expertise helped to guide and shape our thinking throughout the project. Thank you to our guest panelists, Fadi Masoud and Elise Shelley from the University of Toronto. We appreciate the valuable feedback you provided.

Project Team Ryerson Master of Planning Winter 2018 Studio

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Aerial view of Decoteau Area

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Executive Summary

The Emerald Crescent, a connected 10-kilometres park and open space network in Edmonton's Decoteau neighbourhood, provides an opportunity to lead with landscape in developing a new community. This project will help to increase the legibility of a parks and open space network that is currently hidden from view. Designing the Emerald Crescent focuses on prioritizing the unique natural topography and environmental features of the site during the planning process.

The City of Edmonton has partnered with a team of eight Master of Planning students through Ryerson University's School of Urban and Regional Planning graduate studio (the "Studio Team") to develop a vision, guiding principles, and three mutually inclusive scenarios that will inform the future planning and design of the Emerald Crescent in the Decoteau Area.

Harnessing and conserving the ecological network before development occurs offers the City of Edmonton the opportunity to apply *Breathe: Edmonton's Green Network Strategy* (the "*Breathe Strategy*") at a neighbourhood scale (City of Edmonton, 2017). The *Breathe Strategy* guides the citywide green network that consists of integrated open spaces, municipal parks and ecological connections.

Leading with landscape ensures that this community prioritizes the maintenance and enhancement of the ecological functioning and natural legibility

To inform this work, the Studio Team's project methodology included: a thorough review of the land use planning framework; a scan of international precedents of landscape connectivity and park planning; geospatial analysis of the Decoteau Area; interviews with twelve key informants with local knowledge of the study area; a public survey conducted through the City of Edmonton's Insight Platform with 357 local respondents; as well as a site visit conducted in March, 2018. Following this, the Project Team conducted design charrettes to develop an aspirational vision for the development of the Decoteau Area, along with six guiding principles that informed the development of three complementary scenarios.

This report will outline three distinct, but complementary scenarios, that offer different perspectives on what the future of the Decoteau community could look like. The purpose of this work is to provide the City, landowners, developers, Edmontonians and future Decoteau residents with an opportunity to embrace the Emerald Crescent system as a place to breathe, connect and explore.

Our vision for the Emerald Crescent is: "*The Emerald Crescent will be Edmonton's newest and best-connected parks and open space system. A natural gem in the Decoteau neighbourhood where water, wildlife and people will flow seamlessly across the rolling terrain - a park network worth discovering*".

We created six design principles to help guide the creation of the three scenarios: design with nature, destination, adapt, flow, discover, and inclusivity.

The three scenarios include: a Place to Breathe, a Place to Connect, and a Place to Explore.

Project Team touring Decoteau Area in March, 2018

1.0 Introduction

1.1 Background

The City of Edmonton is emphasizing its parks and open space strategy as the foundation for the development of the new Decoteau community. This open space network, which has been named the Emerald Crescent, is 10-kilometres of a connected stretch of parks, wetlands and natural areas that will bridge the five new neighbourhoods that have been proposed within the Decoteau Area in Southeast Edmonton (Stantec, 2014).

The thoughtful design of the Emerald Crescent, prior to the establishment of a new community in the Decoteau Area, provides a unique opportunity to lead with landscape. This project will help to increase the legibility of a parks and open space network that is currently hidden from view. Designing the Emerald Crescent focuses on harnessing the unique natural topography and environmental features of the site during the planning process.

The City of Edmonton has partnered with a team of eight Master of Planning students through Ryerson University's School of Urban and Regional Planning graduate studio (the "Studio Team") to develop a vision, guiding principles, and three mutually inclusive scenarios that will inform the future planning and design of the Emerald Crescent in the Decoteau Area.

Identifying, connecting and conserving the ecological network before development occurs offers the City of Edmonton the opportunity to apply *Breathe: Edmonton's Green Network Strategy* (the "*Breathe Strategy*") at a neighbourhood scale and thus lead with landscape (City of Edmonton, 2017). This Strategy incorporates the three key themes of ecology, wellness and celebration that are intended to inform the direction of future planning (City of Edmonton, 2017). This project represents the first case of implementation of the *Breathe Strategy* at a neighbourhood scale. This approach to lead with landscape in Decoteau will inform the planning and development of this area as it transforms from largely rural and agricultural uses to an urban community of more than 75,000 within 30 years (Stantec, 2014).

1.2 Purpose

The vision that this project introduces for the Emerald Crescent helps imagine the possibilities for the development of one of Edmonton's greenest communities. This report will outline three different but complementary scenarios, each with their own perspective to illustrate different expressions of the future of the Decoteau community. The purpose of this project is to provide the City, landowners, developers, Edmontonians and future Decoteau residents with an opportunity to embrace the Emerald Crescent as a place to breathe, connect and explore.

The vision, guiding principles and scenarios that were developed for the Emerald Crescent were informed by a mixed-methods research approach. This approach included a review and policy scan of Edmonton's physical and planning context, as well as the identification of leading international precedents of parks and open space planning. Primary research was conducted through geospatial analysis, a site visit, key informant interviews and an online survey through the City's the Insight Survey platform.

This report will outline: the project's mandate; the local context of the new upcoming Decoteau community; the research approach; and will outline the vision, principles and scenarios developed by the Project Team for the Emerald Crescent.

1.3 Vision for the Emerald Crescent

Six Guiding Principles
The Studio Team identified six guiding principles that will offer important design considerations and guide the focus of the three scenarios.

• Design with Nature: ecologically-oriented design and planning that embraces the natural topography of the landscape. This principle focuses on inspiring innovative development techniques and thoughtful siting of built elements

"The Emerald Crescent will be Edmonton's newest and best-connected parks and open space system. A natural gem in the Decoteau neighbourhood where water, wildlife and people will flow seamlessly across the rolling terrain -- a park network worth discovering"

that conserve, connect, and celebrate the unique natural features of the Emerald Crescent.

• Destination: place-making that helps to develop a new network of community hubs. This principles focus on designing key nodes for celebration, spaces to disconnect from the city and connections that promote the health and wellness of residents and visitors.

• Adapt: spaces are designed and programmed to be multi-functional and resilient to change. This principle focuses on the need to integrate flexibility into design and planning to ensure the Emerald Crescent responds to the dynamic nature of the natural environment as well as shifts in the human population.

• Flow: prioritizes the connectivity of water, people, and wildlife. This principle focuses on design and planning interventions that are predicated on the seamless movement of water, people, and wildlife across the Emerald Crescent and the recognition of the landscape's complex and interconnected nature.

• Discover: spaces that define a neighbourhood identity, foster a sense of exploration and provide opportunities for learning. This principle supports actions that will instill a sense of place and sparks excitement and pride for residents and visitors alike.

• Inclusivity: residents and visitors of all ages, cultures, and abilities have a place to enjoy the Emerald Crescent. This principle will promote design opportunities to create an inviting and accessible park system that enables exploration, health and wellness, and celebration.

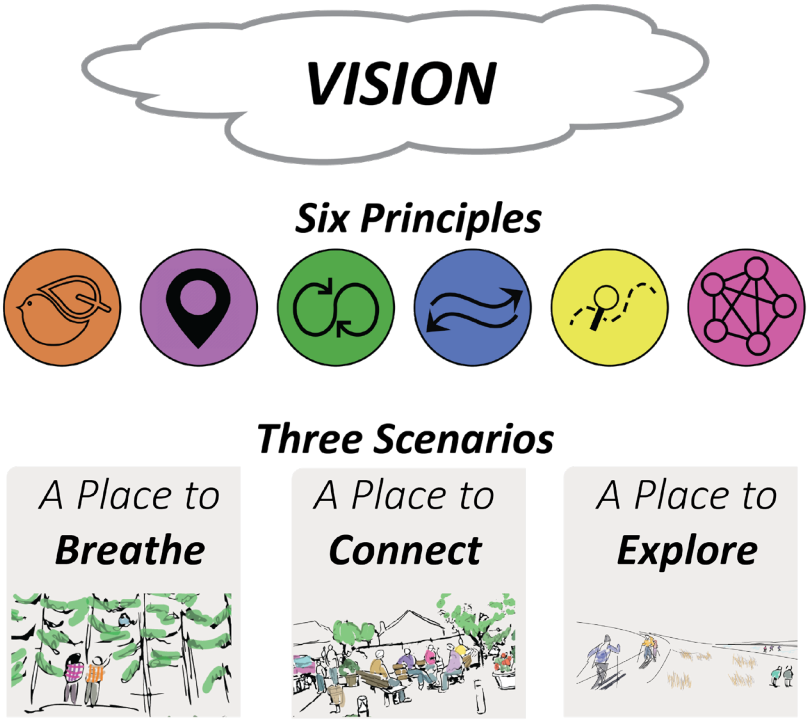
Three Scenarios for the Emerald Crescent

Informed by the six guiding principles, the Studio Team developed three complementary scenarios that are intended to provide an overview and image that illustrated how the City, developers, schools and other key partners can achieve this vision in Decoteau.

A Place to Breathe: "nature at your doorstep"
(Page 27)

A Place to Connect: "weaving it together"
(Page 33)

A Place to Explore: "getting to know your landscape"
(Page 39)



The vision overarches the principles and scenarios.

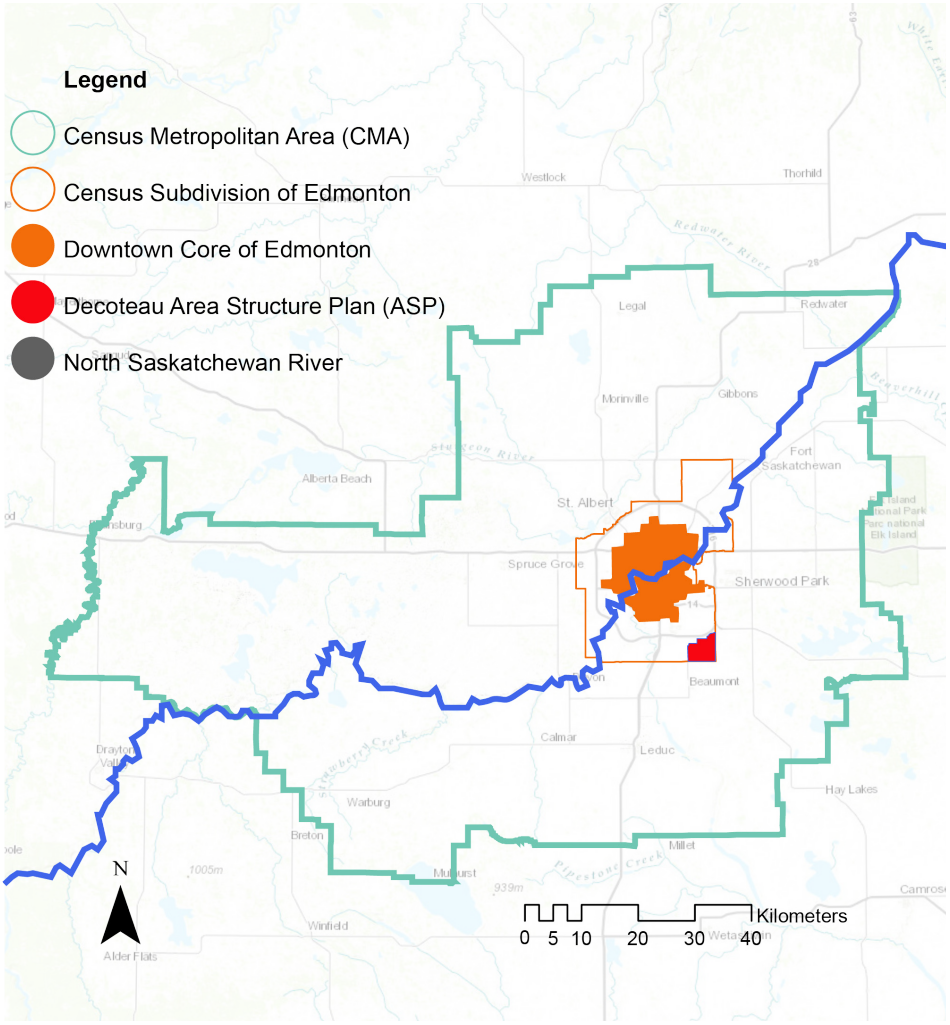
2.0 Project Mandate

2.1 Project Context

In 2015, the Edmonton City Council approved the Decoteau Area Structure Plan (ASP), which covers 1,960 hectares in the city's southeast edge (Stantec, 2014). This area has been prioritized to accommodate 75,000 new residents with clear requirements for higher density across the five distinct neighbourhoods (Stantec, 2014).

The City of Edmonton engaged the Studio Team to lead the exercise of imagining the future of the Emerald Crescent with the goal of creating "sustainable, vibrant communities in an ecologically complex, sensitive and interconnected landscape" (City of Edmonton, 2018). The Decoteau Area has the opportunity to achieve unparalleled potential for ecological conservation, community access to open space, and true integration of open space with other land uses.

The concept of the Emerald Crescent was developed through collaboration between the City, school boards and participating landowners (Stantec, 2014). The creation of the Decoteau ASP was undertaken by Stantec Consulting with the objective of "... making connections and bridging gaps… " in knowledge and understanding of complex natural systems between partners in policy, and on the landscape (Stantec, 2014). This project was designed to build a shared vision for this neighbourhood that could inform the direction of development and planning throughout the area.



Map of Decoteau in relation to Edmonton.

Map of the Emerald Crescent system as presented by Stantec, 2014.

2.2 Applying the *Breathe Strategy* at a Neighbourhood Scale

The Emerald Crescent in Decoteau will be the first project to implement the *Breathe Strategy* at the neighbourhood scale. The implementation of the *Breathe Strategy* offers an unprecedented opportunity to prioritize the inclusion of a connected network of parks and open spaces, as well as the conservation of key natural areas in a neighbourhood plan. The key challenges stem from the need to protect this highly complex and interconnected ecological landscape in an area that is expected to absorb a significant amount of population growth and development. In new Edmonton communities, lands provided by developers through the subdivision process are allocated to different civic uses – which means that innovative open space programming is needed sooner rather than later in the development process (City of Edmonton, 2017).

Wetlands in the Decoteau Area.

2.3 Lead with Landscape

"Leading with landscape" is an approach to developing a vision for Decoteau that focuses primarily and proactively on the area's unique environmental functions and features as the foundation for any incoming development. The leading with landscape approach proposes a phased method to planning within the framework of the Decoteau ASP where natural heritage planning comes first. This approach ensures that all future plans for this new community prioritize the establishment, maintenance and enhancement of the ecological functioning and natural legibility of the area.

The term "leading with landscape" was inspired by the Cultural Landscape Foundation's annual conference that profiles innovative landscape planning and design techniques (Cultural Landscape Foundation, 2015). This proactive approach to parks and open space planning ensures that natural systems are prioritized and their value to incoming communities is embraced.

Leading with landscape ensures that this community prioritizes the maintenance and enhancement of the ecological functioning and natural legibility.

The leading with landscape approach can be seen in other Canadian and international open space strategies, including Toronto's *Ravine Strategy*, the North Oakville Secondary Plan, Melbourne's *Green Wedges*, and Stockholm's *Green Wedges* (see page 8). Through the development of the Decoteau Area, the City of Edmonton has the opportunity to apply this framework prior to the onset of development. This represents an important opportunity to implement the *Breathe Strategy* as the first step in the development and planning process.

At a neighbourhood scale, this approach has been embraced by the tri-governmental agency, Waterfront Toronto in their development of Toronto's waterfront neighbourhood. As this organization leads the largest urban revitalization project in North America, Waterfront Toronto is emphasizing and prioritizing investments in public parks and open spaces (Waterfront Toronto, n.d.). Their development approach is thoughtfully designed with environmental sustainability at the forefront. It assigns a "central role to parks, open spaces…and water" (Waterfront Toronto, n.d.). By creating the parks and open spaces before built-form development arises, Waterfront Toronto has been able to demand a higher quality of development including a clear mandate for design excellence.

Edmonton's *Breathe Strategy* emphasized the leading with landscape approach as it commits to transforming the City's urban form in its recognition of the vital role of parks to the health of a community (City of Edmonton, 2017). The *Breathe Strategy* articulates the opportunity and parameters for the development of a multi-functional green network that underpins the City's many communities (City of Edmonton, 2017).

"In the same way that organisms function within a natural ecosystem, open spaces function as part of a larger integrated whole within the urban ecosystem" (City of Edmonton, 2016).

The Studio Team has drawn inspiration from parks and open space plans that lead with landscape in similar climatic and jurisdictional contexts which offer a comparison to Edmonton. This approach informed the development of our vision for the Emerald Crescent. It prioritizes the conservation of natural ecosystem functioning within an area that is preparing for major changes due to incoming development and population growth.

Open Space Strategies that Lead with Landscape

Toronto *Ravine Strategy*	**North Oakville Secondary Plan**	**Melbourne's *Green Wedges***	**Stockholm's *Green Wedges***
Toronto, Ontario	Oakville, Ontario	Melbourne, Australia	Stockholm, Sweden

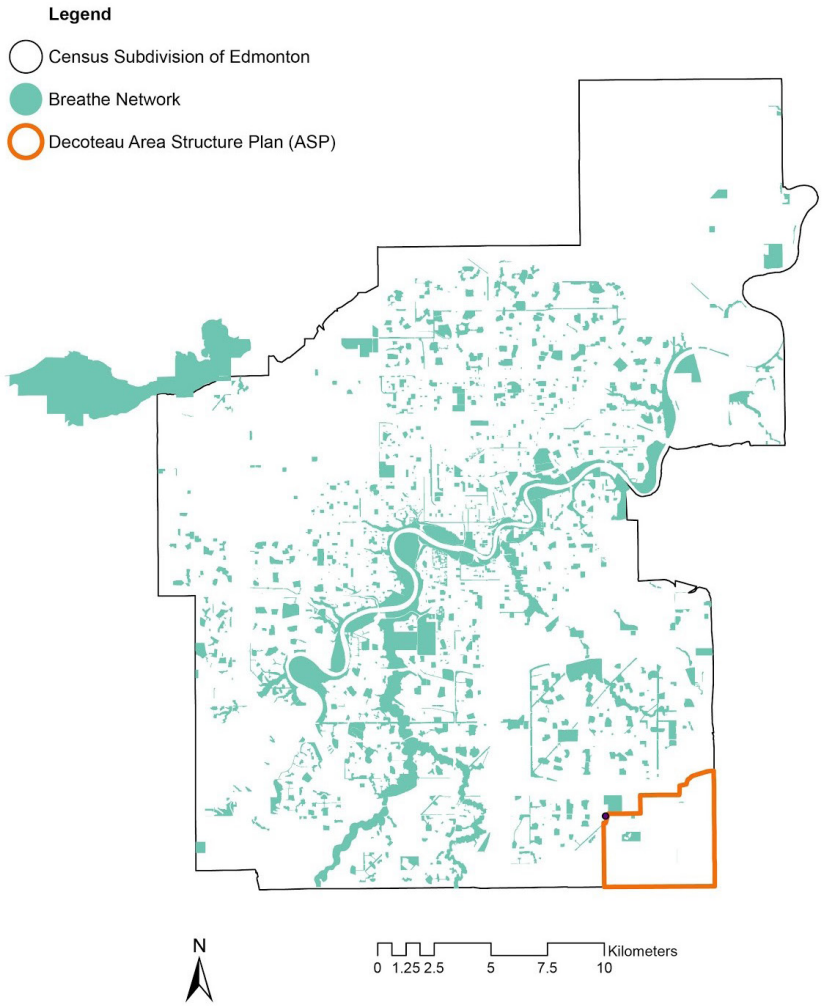
Key Concepts

The Toronto *Ravine Strategy* is intended to help support a ravine system "*...that is a natural, connected sanctuary for the health and well-being of the city*". The Strategy's three major themes are to protect, invest and connect. The focus on investment identifies the City's understanding that within a highly urban area the pressures felt by the ravines, including increased recreational use, climate change and invasive species, will require active and sustained management.	Prior to development, the North Oakville Secondary Plan identified a natural heritage and open space system to be protected, preserved and enhanced. This interconnected green space network *will come in to public ownership* progressively as development occurs in the area. The natural heritage system consists of over 900 hectares of green space, natural habitat and farmland.	Melbourne has designated 12 Green Wedge Zones outside their urban growth boundary. These Green Wedges are intended to maintain a mix of agricultural uses and low-density activities. Each Green Wedge has *its own action plan* that identifies the form that residential activities and development can take within areas that prioritize farming.	Stockholm has identified 10 *Green Wedges* that sit between existing urban development and grew around transit corridors. Within the wedges, only 20-30% of the land is protected, as much of it remains privately or institutionally owned. Within each wedge's regional plan, *acquisition strategies exist to identify key areas* that should be converted into parks or green spaces. These plans establish 'green hubs' to encourage public access into this parks system.

In Stockholm, playgrounds and walking trails exist within the *Green Wedges* to promote usage and connection to nature.

3.0 Site Context: Decoteau and Edmonton

The Decoteau ASP is located in the southeast corner of the City of Edmonton. This neighbourhood is located 24 kilometres from the downtown core of the city and directly south of Edmonton's ring road, the Anthony Henday Drive. The site is bound by Ellerslie Road and the Anthony Henday Drive to the north, Meridian Street to the east, 41 Avenue S.W. to the south, and 50 Street S.W. to the west. The existing road network creates important connections for vehicular access to the Emerald Crescent and major parks within it. However, the road network acts as a major barrier for wildlife that is moving throughout the landscape.



Map of the *Breathe* network and Decoteau in relation.

50th Street intersection cuts through Ellerslie Lake creating a barrier for wildlife connectivity.

The rolling landscape of Decoteau.

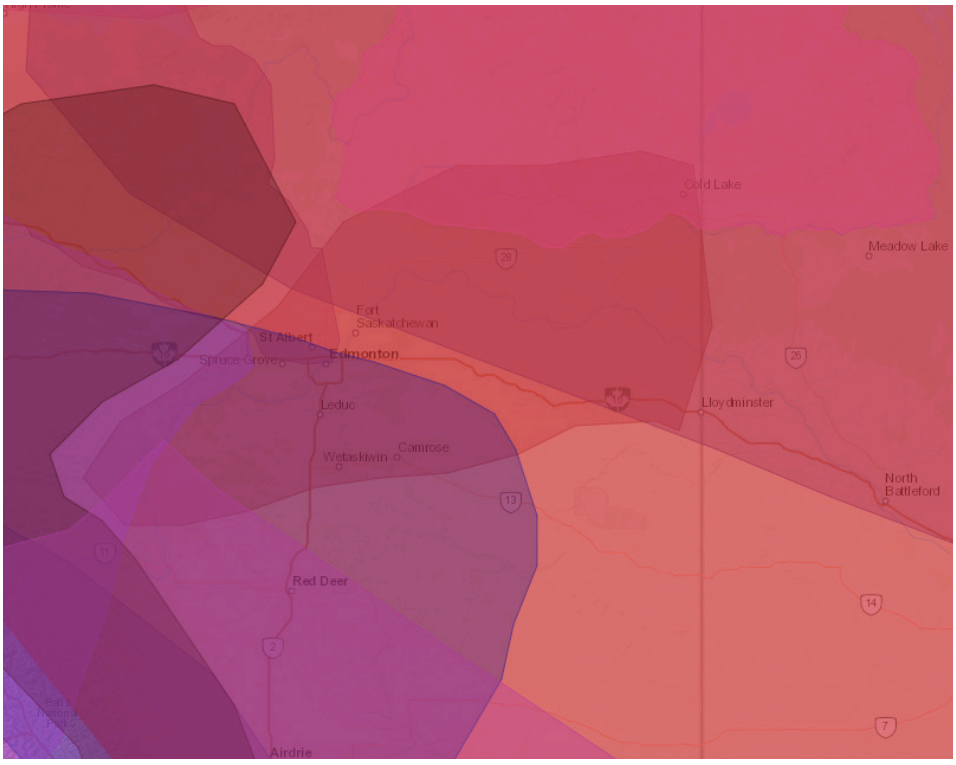


Image from native-land.ca shows the variety of Indigenous groups in the Edmonton area.

3.1 History of the Decoteau Area

The Decoteau neighbourhood is named after Alexander Decoteau to recognize the Indigenous history of the area (Archives Canada, 2016). He was a Cree distance runner in the 1912 Stockholm Olympic Games and the first Aboriginal police officer in Canada (Archives Canada, 2016).

The Decoteau Area is part of Treaty 6 territory, a traditional gathering place for many Indigenous peoples, including the Cree, Blackfoot, Metis, Nakota Sioux, Iroquois, Dene, Anishinaabe, Inuit, and many others whose histories, languages, and cultures continue to influence this community (Alberta Teachers' Association, 2018). It is important to acknowledge and establish partnerships with Indigenous populations as Decoteau is further established and planned (see Section 6.0 for recommendations regarding engaging with Indigenous peoples for additional clarification).

3.2 Natural Landscape

The City of Edmonton is located in Alberta's Central Parkland natural region – Alberta's most densely populated natural region (Alberta Parks, 2015). This area has historically been converted to agricultural and urban uses, but was once dominated by natural grasslands, and small balsam and aspen forested patches (Alberta Parks, 2015). Within the City of Edmonton, the most dominant natural feature is the North Saskatchewan River, which cuts through the middle of the City and is one of the most treasured features of the City and greater region (City of Edmonton, 2011). The North Saskatchewan River Valley represents the largest continuous feature of the City's open space network, and largest protected urban park in North America (City of Edmonton, 2007).

Wetlands and Biodiversity

Across the Decoteau Area, the landscape is characterized by small yet significant hummocky mounds and depressions that are the outliers of the Beaverhill Uplands to the east (Stantec, 2014). The rolling hills of this 'knob and kettle' landscape create a distinct natural topography compared to other areas of the city to the north, where the major river valley of the North Saskatchewan River and other tributaries are the dominant elements of the landscape. Due to this unique topography, the Decoteau Area contains a high concentration of wetlands that provide key wildlife habitat and refuge (Stantec, 2014).

The Decoteau Area is located within the Strawberry Watershed drainage basin (Stantec, 2014). All groundwater flows northwest towards Blackmud Creek and the North Saskatchewan River (Stantec, 2014).

The Decoteau Area is a unique marsh area which encompasses 25% of Edmonton's remaining wetlands (City of Edmonton, 2018). Many of the wetlands throughout this area are classified as Class 5 wetlands, which are semi-permanent ponds or lakes, and Class 2 wetlands, which are ephemeral and dry out seasonally, but provide an important springtime habitat for many fish and amphibian species (Province of Alberta, 2015). Due to periodic flood events, it is recommended that pollution buffers between all wetlands and stormwater management structures are established (City of Edmonton, 2007). Wetland conservation is an important consideration as the hydrologic and ecological systems are dependant on these water regimes. Ensuring these natural

Unique wetlands in Decoteau.

"the rolling hills of this 'knob and kettle' landscape create a distinct natural topography"

systems are preserved will play an important role to mitigate the impacts of climate change into the future.

The Decoteau Area supports the movement of animals, such as native species of songbirds, deer, and toads. In order to preserve local biodiversity, indicator species have been identified by Solstice Canada Corporation in their Environmental Sensitivities Project as part of their consultation work for the City of Edmonton (Solstice, 2017). The City of Edmonton has used this method and associated landscape connectivity analysis (called CircuitScape) to help identify landscape connections throughout the city. This analysis reflected the movement of three indicator species: coyote, chickadee and sturgeon to ensure habitat considerations were given to various types of animal movement (Solstice, 2017). As development comes to the area, establishing buffers for wetlands and ensuring wildlife movement are important considerations for maintaining the integrity of the ecological functioning of the Decoteau Area.

Decoteau's rolling landscape in March, 2018.

Visiting Decoteau with City of Edmonton ecologist in March, 2018.

3.3 Landscape Connectivity and Wildlife Barriers

The landscape is currently dominated by agriculture with grain and oilseed as the primary output (Stantec, 2014). This rural landscape currently enables the movement of many animal species across this region, as it connects to broader systems in neighbouring Strathcona and Leduc County. Within the Decoteau Area, important ecological pinch points exist at 50 Street S.W. at the west end of the ASP and 17 Street S.W. to the east. These roads create barriers to wildlife and ecological movement, and landscape connectivity that have been identified within the ASP (Stantec, 2014).

As development occurs and roads are introduced, the higher traffic flow will introduce new wildlife barriers. Loss of natural connectivity can be mitigated across this landscape through the use of Edmonton's Wildlife Passage Engineering Design Guidelines. These Guidelines provide design standards to maintain habitat connectivity, and reduce human and wildlife contact on roads which compromise safety (City of Edmonton, 2010). The integration of wildlife crossing structures, along with the thoughtful siting of roads in an area set to experience further development, is widely regarded as an important intervention to reconnecting fragmented landscapes (Lister et al., 2015).

"Wildlife crossings – road infrastructure that has proven effective in reducing the impacts of roads by reconnecting landscapes over and under roads – can facilitate the movement of wildlife between areas" (Lister et al., 2015)

Studio Team at 215 Street Wildlife Passage, March, 2018.

3.4 Policy Context

Throughout the process of developing a vision for the Decoteau Area, there is important policy guidance that must be considered. In the early stages of this project, a policy review was conducted in order to ensure the outcomes of this project were consistent with the planning context in Edmonton and Alberta. The following offers a synthesis of relevant policies that will inform the development of the Decoteau Area.

Provincial Policy
The Province of Alberta has designated the Decoteau Area as a "Priority Growth Area" as a means to ensure that the Capitol Region remains sustainable, both economically and environmentally, for future generations to come (Stantec, 2014).

Municipal Policy
The City of Edmonton has designated the area as an "Urban Growth Area" in its *Municipal Development Plan - The Way We Grow*. Given its land use designation, there are several strategies to which development in the area is required to adhere. Most notably, the area must adhere to the prescribed growth target of 25-35 units per hectare (City of Edmonton, 2015).

The City of Edmonton also has several plans that apply to the area, such as *The Way We Green*, which is the City's Environmental Strategic Plan; *The Way We Live*, which is Edmonton's People Plan that enforces communities to be connected, welcoming, and attractive; and the *Way We Move* which is Edmonton's Transportation Master Plan providing a framework to support the City in achieving an integrated transportation network.

The City Wide Food and Agriculture Strategy ("Fresh"), is another plan that must be considered. It explores opportunities to interconnect food production, land use and community development (City of Edmonton, 2012).

Environmental Reserve Guidelines (2007)
Section 664 of the Alberta Municipal Government Act (City of Edmonton, 2007) empowers the City of Edmonton with the authority to take away part of the gross developable area of a parcel of land to create an environmental reserve if:

(a) a swamp, gully, ravine, coulee or natural drainage course
(b) land that is subject to flooding or is, in the opinion of the subdivision authority, unstable or
(c) a strip of land, not less than 6 metres in width, abutting the bed and shore of any lake, river, stream or other body of water for the purpose of
(i) preventing pollution, or
(ii) providing public access to and beside the bed and shore.

Objectives from The Way We Green that inform Designing the Emerald Crescent:

"The City of Edmonton understands the ecosystems and ecosystem services upon which Edmonton depends, valuing and protecting them as Edmonton grows. (Objective 3.1)"

"The City of Edmonton protects, preserves and enhances a system of conserved natural areas within a functioning and interconnected ecological network. (Objective 3.3)" (City of Edmonton, 2011)

Furthermore, the City of Edmonton's Environmental Reserve Guidelines provide the regulatory framework that aids in the determination of the appropriate Environmental Reserve (ER) for wetlands and other significant water bodies in the City. The guidelines require a minimum buffer of 30 metres to be placed around wetlands boundaries to mitigate against pollution (City of Edmonton, 2007).

Breathe: Edmonton's Green Network Strategy (2017)
This policy document guides the citywide green network that consists of integrated open spaces, municipal parks, and ecological connections. This framework is intended to promote the health and well-being of residents and the environmental landscape. It encompasses all publicly owned outdoor land and water, such as plazas, parks, pedestrian-oriented streetscapes, greenways, green infrastructure, and natural areas.

The *Breathe Strategy* is predicated on a multi-functional and interconnected approach to parks and open space planning in the city. The *Breathe Strategy* aligns with the strategic directions of *The Way Ahead* and which directs investment to green infrastructure for climate resilience. It recognizes the balance that must be struck between the natural and built form, humans and the environment, as well as the needs of the present and the future populations. Since the terrain of this space supports the surrounding wetland ecosystem, this presents the perfect opportunity to lead with landscape. The *Breathe Strategy* will be vital to the regulation of the physical amenities that will be constructed in the Decoteau ASP.

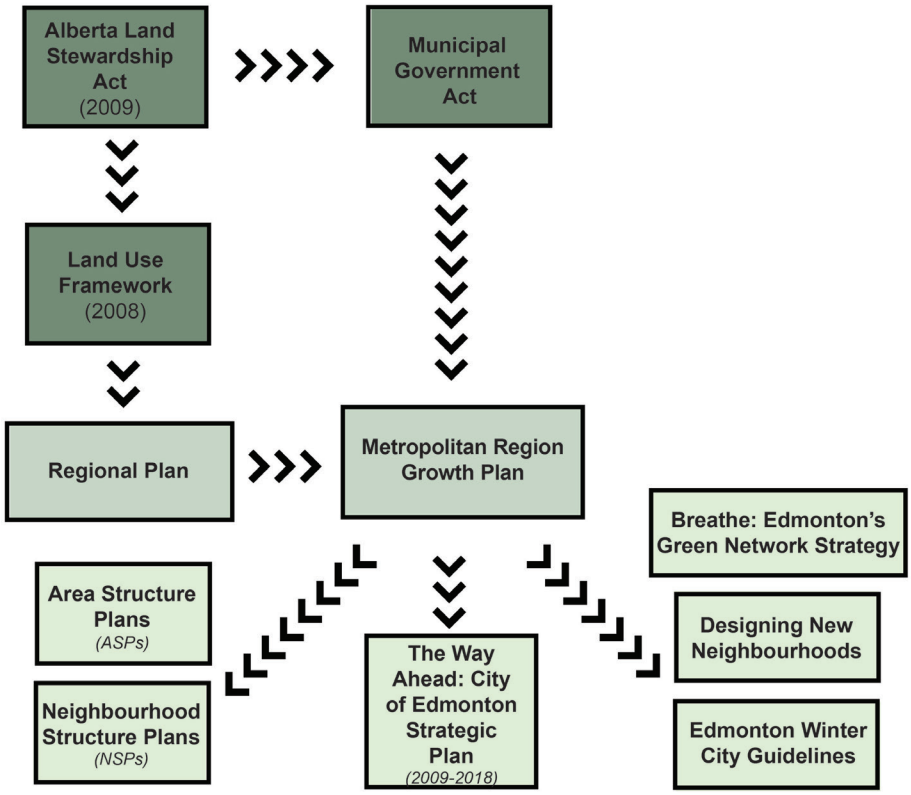


Diagram of Edmonton's planning policy context.

Edmonton has developed Wildlife Passage Engineering Design Guidelines, which were created as a toolkit for transportation designers to help incorporate the needs of wildlife into transportation project: Improving habitat connectivity and reducing human-wildlife conflict on roads (City of Edmonton, 2010)

Decoteau Area Structure Plan (2015)

Area Structure Plans (ASPs) establish the vision and guiding principles while adhering to Municipal Development Plan policies. ASPs are prepared and submitted by a land owner(s) "of the majority of lands within the plan area" (City of Edmonton, 2010).

The Decoteau ASP was adopted by Edmonton City Council in 2015 after undergoing the required course of application. In total, 25% of the ASP plan area is owned by a conglomerate of developers and multiple private land owners, while the remaining 75% of land in DASP is owned by non-participating owners (Stantec, 2014).

A significant principle of the Decoteau ASP is that it strives to make connections and bridge gaps - in knowledge and understanding of complex natural systems, between partners, in policy and tools, and eventually, on the landscape. This is made possible by means of having the ASP allocate approximately over 250 hectares for the use of schools, parks, public open space, and natural areas. In the ASP, future environmental reserves have been strategically located to reinforce the existing ecological network found within the Decoteau Area (Stantec, 2014).

The next layer in the municipal planning and land development process involves the creation of a neighbourhood structure plan (NSP). A NSP is used to guide the trajectory of neighbourhood development in terms of site-specific zoning, the subdivision process, as well as the provision of necessary infrastructure and servicing (City of Edmonton, 2014). There are currently five neighbourhoods that have been planned under the Decoteau ASP. The City of Edmonton Wetland Strategy stipulates that a Natural Site Assessment (NSA) must be conducted as part of the NSP process. The NSA process helps to ensure that appropriate strategies are in place to protect sensitive environmental features from the impacts of development.

Decoteau's unique topography, of knob and kettle formation.

3.4 Area Demographics

The Decoteau area is located in Edmonton's Ward 12 (City of Edmonton, 2016). Based on the City of Edmonton's municipal Census results for Ward 12, there is currently a total population of approximately 102,389 people in this southeastern edge of the city (City of Edmonton, 2016). It is important to note that there are currently only 250 residents in Decoteau, but understanding the overall demographics in Ward 12 provides the context for likely trends as the Decoteau Area grows (Stantec, n.d.).

Age and Gender Distribution
Edmonton is a young city, with the largest 10-year cohort of the population in Ward 12 between the ages of 30 and 39 years old (15,105 people). There are a growing number of young families in the area indicated by the 11,997 children between ages 0 and 9 years old living in Ward 12. There are very few seniors living in the area, with only 329 people aged 85 and above. If these residents continue to stay in the area, there will likely be an increase in aging populations and teens in the coming years as middle aged and school aged populations continue to age. It will be important to consider these factors of multi-generational lifestyles in order to attract a diverse demographic mix in the Decoteau community (City of Edmonton, 2016).

Main Mode of Transportation from Home to Work
The most popular mode choice in Ward 12 is driving (78.98% of respondents) followed by public transit (9.84% of respondents). Of those who responded, 4.68% travel as a passenger in a car, truck or van, and cycling is the least popular mode choice (0.18% of respondents), followed by walking (0.95% of respondents) (City of Edmonton, 2016). While less than 1% walk or cycle, these suggestions have been included in the three scenarios to welcome shift in these trends and help provide more opportunities for active transportation to future residents (City of Edmonton, 2016).

Household Languages
The majority of respondents speak English only (38.41%) followed by Punjabi (10.22%) and Tagalog (pilipino; Filipino) with only 0.02% speaking North American Indigenous languages; and Ukrainian (City of Edmonton, 2016). This indicates that while the population currently may be fairly culturally homogeneous, the neighbourhood is beginning to show signs of increased cultural diversity (City of Edmonton, 2016).

Housing Structure
The majority of the population in Ward 12 own their houses (61.88%) followed by 14.83% of the population renting (City of Edmonton, 2016). Single-detached houses are the most common type of dwelling at 63.58%, followed by low-rise apartment/condo 15.64% (City of Edmonton, 2016). Only 0.76% live in a condo that is higher than 5 storeys (City of Edmonton, 2016). This confirms the homogeneity of housing structure in the city (City of Edmonton, 2016).

Infographics of current Ward 12 mode choice.

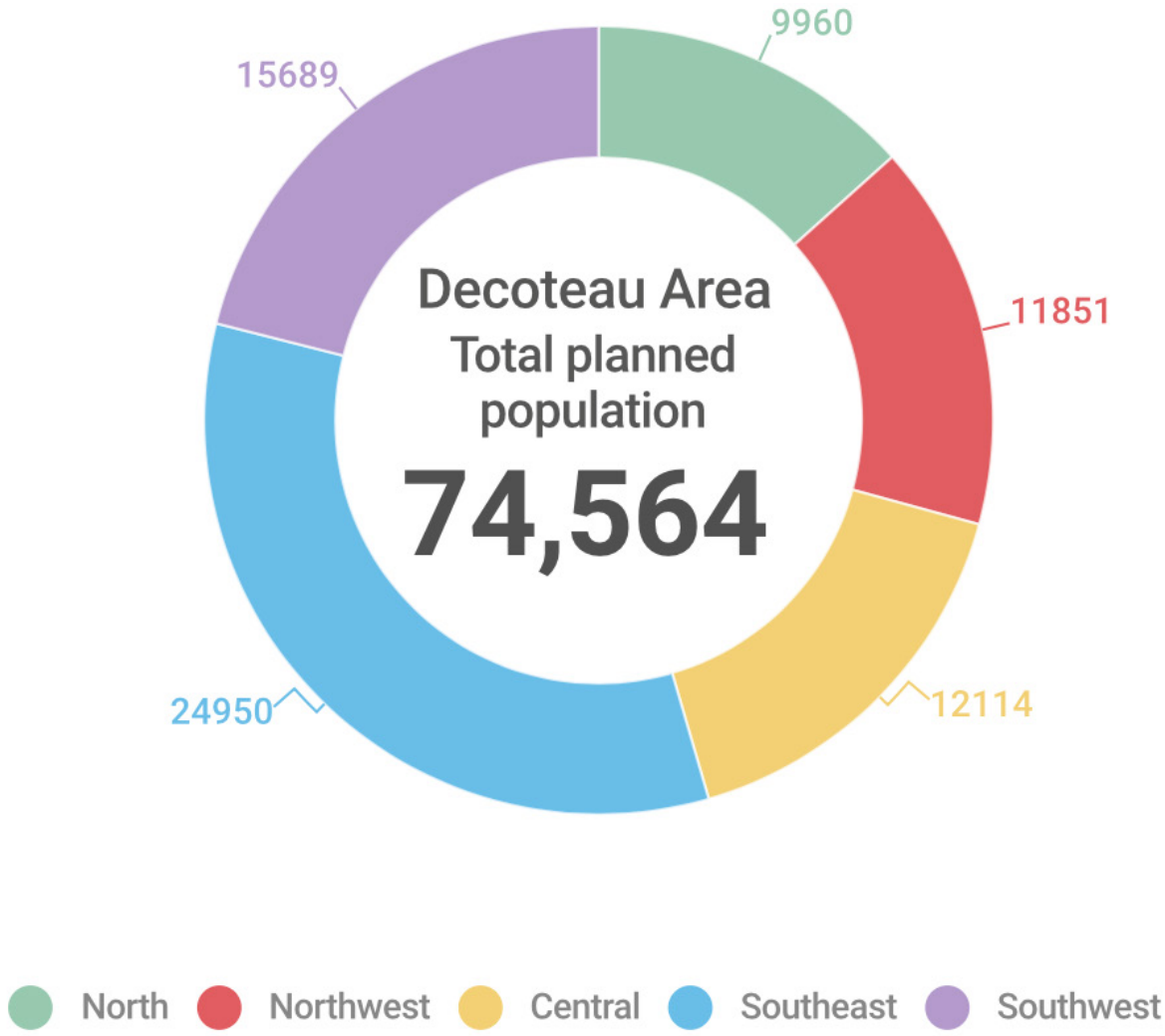


Chart of expected population in the new Decoteau area.

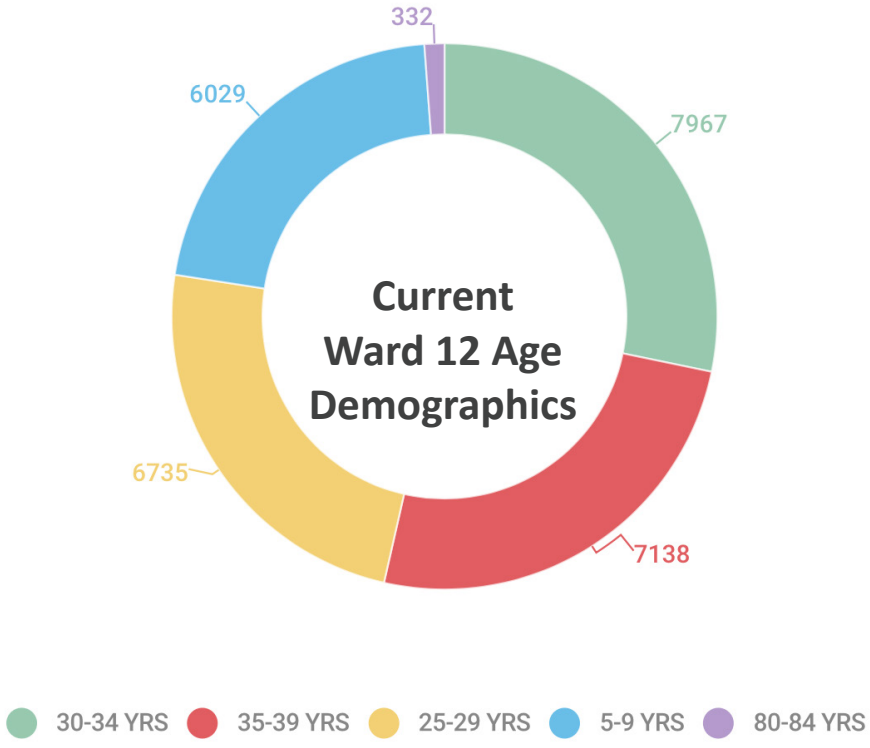


Chart of current age demographics in Ward 12.

4.0 Methods Framework

The Studio Team employed a mixed-methods approach to inform the creation of the vision, guiding principles and three scenarios. Both primary and secondary research was undertaken to provide a more holistic expression of how the *Breathe Strategy* could be implemented at the neighbourhood scale.

Graphic of our methods work. Our foundation was research and then we began to build on that to begin ground-truthing our work.

Policy Review
The initial stage of the research process involved a review of the land use planning context in Alberta and Edmonton (outlined in section 3.4 Policy Context). A comprehensive scan of relevant provincial, regional and municipal policy documents was undertaken to garner an understanding of the regulatory underpinning of the planning framework in Edmonton. Knowledge of the policy framework was used to ground the scenarios in the reality of the land use planning regime.

Precedent Review
Precedents of green network strategies were selected based on their congruences with the scale of the *Breathe Strategy* and similar climates to Edmonton. Precedent research was divided into three categories: international green network planning, national green network planning (see page 8). The precedent research provided examples of innovative approaches to green network planning that were used to inform the design and planning interventions in the scenarios.

Geospatial Analysis
Geographic Information Systems (GIS) based analysis was used to gain a desktop understanding of the physical landscape both regionally and at the site level. Data sets were provided to the Studio Team by City of Edmonton staff and included Urban Primary Land and Vegetation Inventory, Environmental Sensitivity, the Breathe Open Space Inventory & Function Dataset, and the City of Edmonton Open Data.

This analysis was conducted through both a human-usage and ecological lens. The information gained from this analysis was analysed and organized into key opportunities and challenges (see page 23 and 24). The identified opportunities and challenges were used to inform the creation of planning and design interventions to guide the realization of the vision for the Emerald Crescent.

Key Informant Interviews
A world cafe interview session with 12 Edmonton-based experts in ecology, city planning, and members involved in the Decoteau ASP development process was conducted on March 2, 2018. During the session the Studio Team presented and discussed the opportunities and challenges that were identified during the geospatial analysis. Interviews provided a deeper understanding of the possibilities surrounding the creation of a vision for the Emerald Crescent. Furthermore, the interviews were used as a tool to gain insight into ways to further engage Edmontonians in the planning process (Appendix 8.1).

An interview with Environmental Planning staff at the City of Toronto was also undertaken to learn about the best practices for green network planning in Toronto which could be used for comparison and

potentially where appropriate applied to the Edmonton context. This revealed many important lessons that were gleaned from Toronto's Ravine Strategy and the parks planning involved in the development of TOcore, Toronto's proposed downtown plan.

Site Visit

A site visit to the Decoteau Area was conducted on March 2, 2018. This allowed the Studio Team to engage first hand with the landscape. The site visit was led by City of Edmonton planners and an ecologist from the City of Edmonton who shared technical information about the landscape. The ability to visit specific areas of the site allowed the Studio Team to view the site through an experiential lens. Furthermore, it fostered a placed-based spatial awareness of the site that built upon the existing desktop understanding of the Decoteau Aerial awareness of the site that built upon the existing desktop understanding of the Decoteau Area.

Vision and Scenario Development

A design charrette was undertaken by the Studio Team to bring together all of the research and learning that was gained through all the project stages. All of the primary and secondary research was aggregated and assessed to create the vision and guiding principles, which form the basis for the three scenarios. An experiential lens was used as the foundation to generate the scenarios, which are three complementary expressions of the overarching vision for the Emerald Crescent.

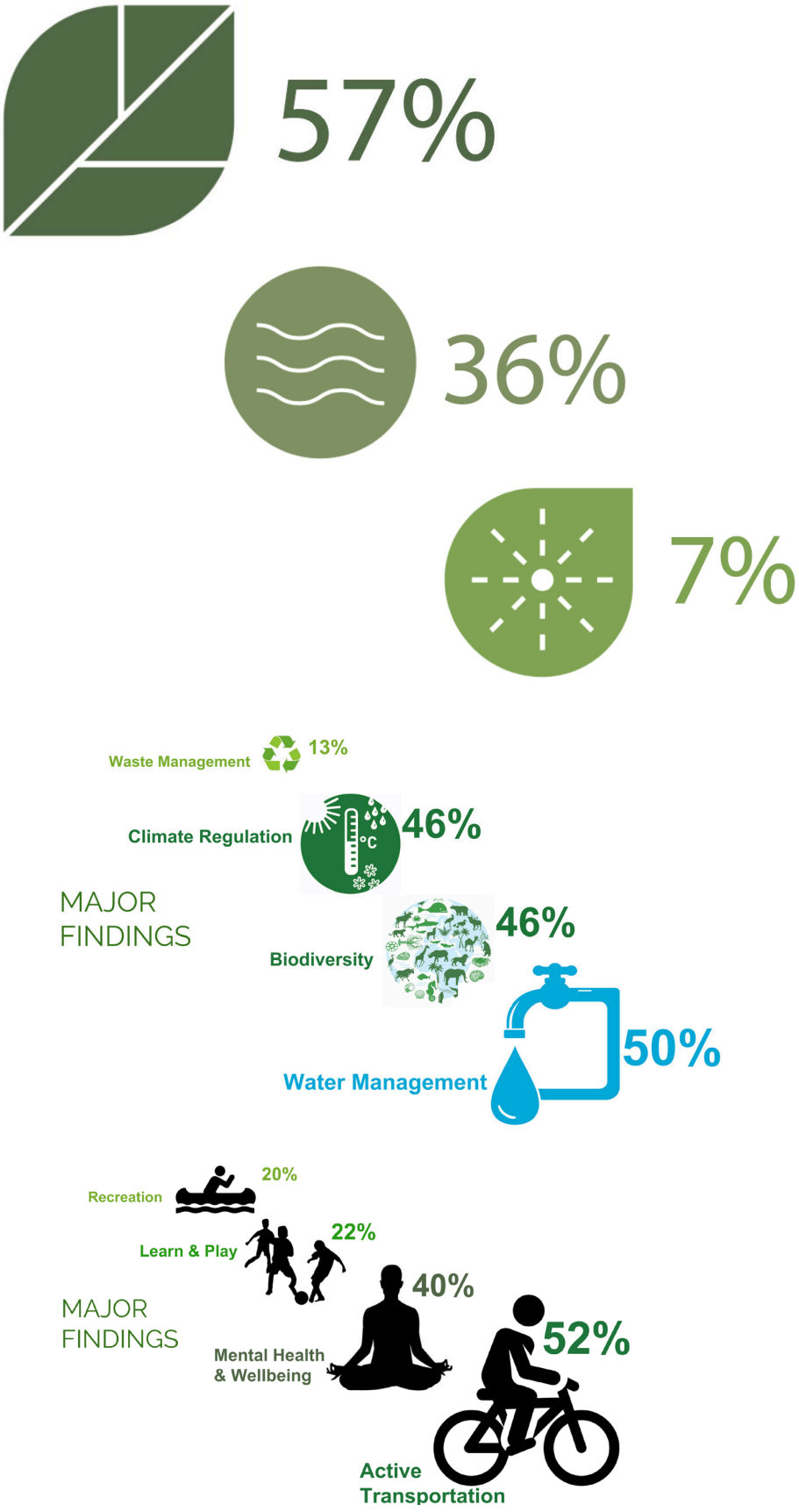
World Cafe held in Edmonton, March 2018 with various stakeholders.

Insight Survey

In collaboration with Edmonton's City Planning and Insight Community Survey and Research team, a survey was sent to the Insight membership base, with 865 respondents having opted-in. There were a total of 357 respondents to the survey, which was a 41% response rate, and overall considered to be a high response rate. The survey consisted of six questions that explored the types of elements and features that would be important for Edmontonians when designing the Emerald Crescent. The key findings from the Insight survey results helped to inform development of the three scenarios.

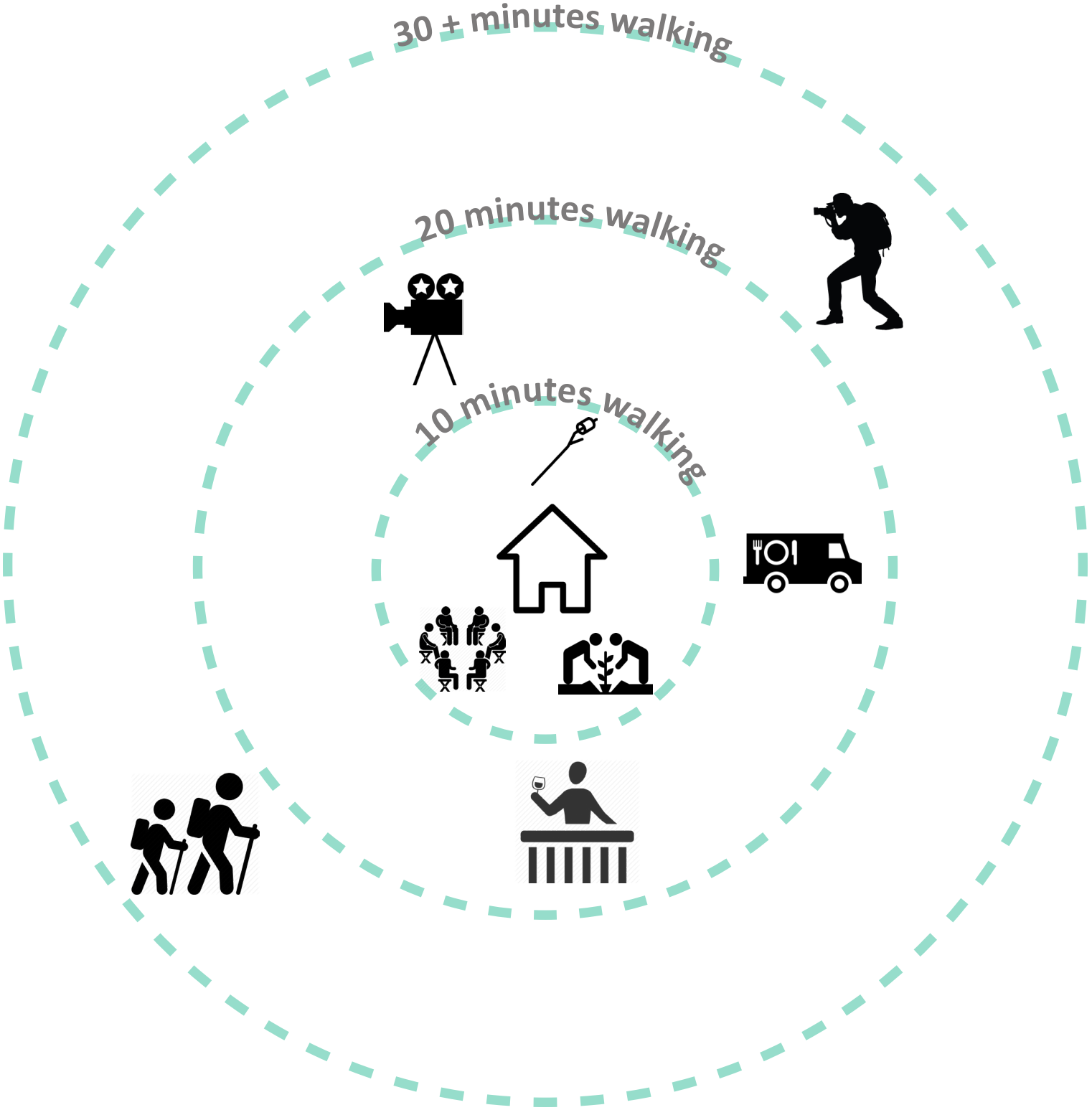
What to prioritize (under the Ecology theme):
#1: Water management (50%)
#2: Climate regulation (46%)
#2: Biodiversity (46%)
#4: Waste management (13%)

What to prioritize (under the Wellness theme):
#1: Active transportation (52%)
#2: Mental health and wellbeing (40%)
#3: Learn and play (22%)
#4: Recreation (20%)



Insight survey results indicating ranking of preferences.

People are willing to walk 10 / 20 /30+ minutes from their homes for certain activities.



Insight survey results showing preferences for activities within certain walking distances of home.

Opportunities

To formulate opportunities for the Emerald Crescent in terms of programming the parks and open space, the existing and proposed conditions of the study area were analyzed mainly through GIS analysis and stakeholder interviews.

Six features were framed as opportunities:

1. **Seven schools, public or otherwise, fall within the boundaries of the study area.** By partnering with the school boards, the municipality and the schools could provide additional space to the community for recreation and experiential/nature learning. These sites could also serve points of connection to the larger green network.

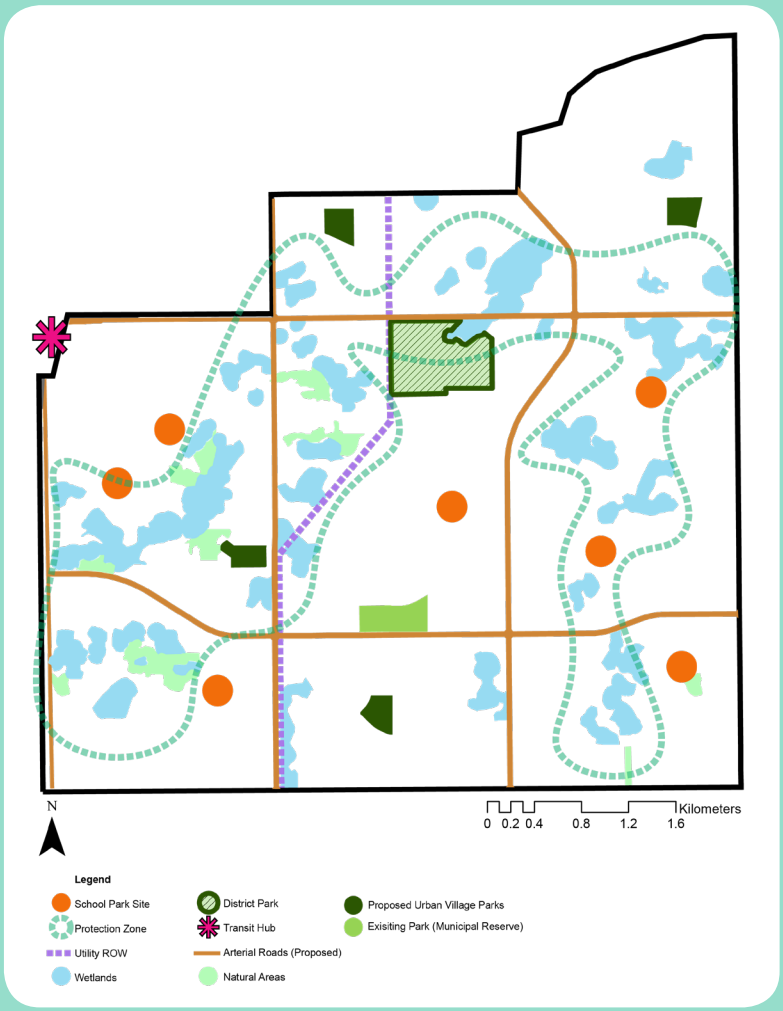
2. **A Utility Right-of-Way has been identified as a north-south connection intersecting the site.** As seen in other contexts, these often under-utilized spaces can serve as opportunities for programming and, in the case of the Emerald Crescent, as another point of connectivity as a multi-purpose trail for humans, a pathway for pollinators and/or a meadow habitat for animals.

3. **Areas of high concentration of wetlands and other significant natural areas** provide opportunities for a) the designation of significant ecological core areas to preserve habitats and biodiversity b) to support passive recreational uses c) to create a complementary network of paths for wildlife and human passage

4. **The District Park in the northern quadrant of the site could be a core celebration/wellness area.** There is also an opportunity to enhance small-medium size public open spaces and, of course, to develop an open space network.

5. **The transit hub to the north west is an interesting opportunity to promote active transportation.** For example, a multi-purpose trail could see Edmontonians walking, rolling, biking, and skiing to the transit hub. With appropriate locking stations, commuters could lock their equipment and take the bus into the city for work or play.

6. **Roads, both proposed and existing, uniquely could present an opportunity for this new site.** The municipality could have the chance to define primary and secondary streets/pathways, allowing for different modes of transportation. Since these would most likely be public roadways, the municipality also has the opportunity to provide for some protection of ecosystem habitat by preserving the mature tree canopy that surrounds the proposed roadways, and maintaining the existing botany and arboreal wildlife.



Map of Opportunities in the Decoteau Area.

Challenges

GIS analysis and correspondence with key informants was used to identify the areas where development comes into conflict with the existing green network. The identification of these conflict areas was used to ensure that appropriate design interventions as well as strategic programming were capable of preserving the existing ecology in the area.

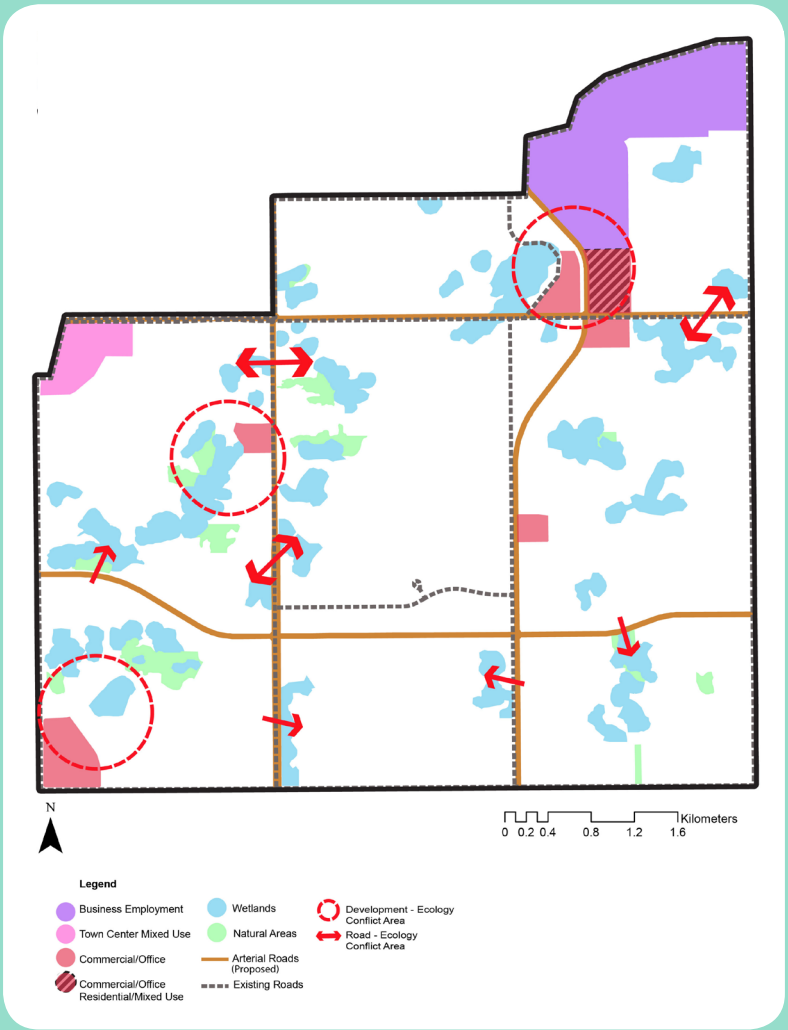
Four features were framed as challenges:

1. **Roads were identified as a significant challenge and catalyst in the fragmentation of natural systems.** The existing and proposed road network runs adjacent to existing wetlands as well as identified boreal pathways, thus causing a road-ecology conflict areas. It will therefore be important to integrate wildlife crossing structures and appropriate buffers/setbacks which can help to mitigate some of the negative impacts caused by the expansion of the road network.

2. **Furthermore, some of the existing wetlands and natural areas are in close proximity to planned business and commercial areas.** These uses present a challenge to the preservation of the existing ecology in the area. It will be important for surrounding uses to integrate buffers, use low-impact development methods and ensure the timing of construction activities are thoughtful of the times of year where species movement is heightened.

3. **The challenge for new neighbourhoods is that the City is required to invest in parks and open spaces before the tax base exists.** One of the Strategic Directions outline in *Breathe* is to look for strategic ways to allocate resources. The scenarios will identify areas where multi-functionality and multiple uses for single areas or parcels may present opportunities to maximize investments made within the green network.

4. **The development of the Decoteau Area will also be informed by the opinions of different land and property owners.** It is important to acknowledge that there is a fragmented ownership structure and this could act as a challenge in the creation of a unified green network strategy. This highlights the need to maintain strong relationships with key stakeholders that are built on trust and a mutual understanding of the value of the green network.



Map of Challenges in the Decoteau Area.

5.0 Designing the Emerald Crescent

The following section outlines the vision, guiding principles and scenarios that were developed by the Studio Team, based on the methods (section 4.0). These are intended to inspire the direction of future planning and development in the Decoteau Area in order to create Edmonton's greenest community.

5.1 Vision for the Emerald Crescent

"The Emerald Crescent will be Edmonton's newest and best-connected parks and open space system. A natural gem in the Decoteau neighbourhood where water, wildlife and people will flow seamlessly across the rolling terrain - a park network worth discovering."

5.2 Guiding Principles For the Emerald Crescent

Six principles have been developed to inform how the Emerald Crescent will be designed and planned. These principles can guide the proposed direction of this landscape, which will see the Decoteau neighbourhood grow around and in consideration of this park and open space network.

• **Design with nature**: ecologically-oriented design and planning that embraces the natural topography of the landscape. This principle focuses on inspiring innovative development techniques and thoughtful siting of built elements that protect, connect, and celebrate the unique natural features of the Emerald Crescent.

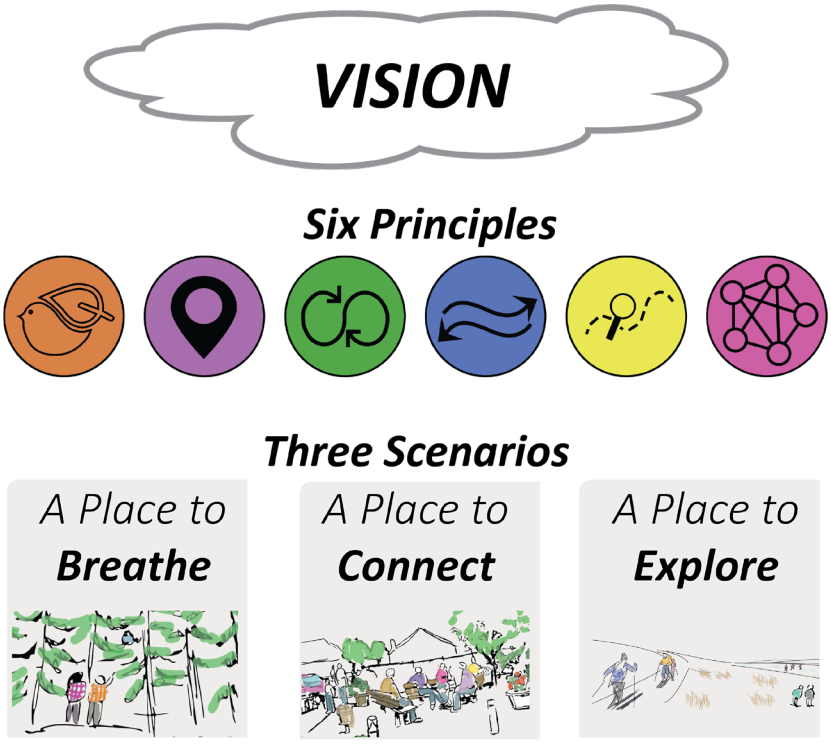
• **Destination**: place-making that helps to develop a new network of community hubs. This principle focuses on designing key nodes for celebration, spaces to disconnect from the city and connections that promote the health and wellness of residents and visitors.

• **Adapt**: spaces are designed and programmed to be multi-functional and resilient to change. This principle focuses on the need to integrate flexibility into design and planning to ensure the Emerald Crescent responds to the dynamic nature of the natural environment as well as shifts in the human population.

• **Flow**: prioritizes the connectivity for water, people, and wildlife. This principle focuses on design and planning interventions that are predicated on seamless movement across the Emerald Crescent and the recognition of the complex and interconnected nature of this landscape.

• **Discover**: spaces that define a neighbourhood identity, foster a sense of exploration and provide opportunities for learning. This principle supports actions that will instill a sense of place that sparks excitement and pride for residents and visitors alike.

• **Inclusivity**: residents and visitors of all ages, cultures, and abilities have a place to enjoy the Emerald Crescent. This principle will



promote design opportunities to create an inviting and accessible park system that enables exploration, health and wellness, and celebration.

5.3 The Three Scenarios

In imagining the Emerald Crescent, the Project Team developed three scenarios that offer complementary perspectives on how the Decoteau Area and Emerald Crescent could be planned and designed. Each scenario emphasizes two of the above guiding principles to inform its respective development. These scenarios all help to achieve one overarching vision (outlined above) and incorporate a series of guiding principles that all embrace an approach that purposefully leads with landscape. These scenarios are not intended to be mutually exclusive, but rather offer different expressions of what the possible future of the Decoteau Area could look like.

All the scenarios are based on central themes and illustrate successful precedent examples from across Edmonton, Canada and around the world. The following scenarios were developed by the Project Team based on the method outlined in section 4.0.

Visiting Decoteau with City of Edmonton ecologist and planners.

The Willow sculpture in Borden Park, March 2018.

Video development with John and Carla, February, 2018.

5.3.1 Scenario One: A Place to Breathe "Nature at your Doorstep"

"Decoteau will be a community where everyone has nature at their doorstep. An area in Edmonton for people to celebrate and embrace the unique, natural landscape."

Strategy of Scenario One: A Place to Breathe

A Place to Breathe focuses on the two main guiding principles of Design with Nature and Destination. This scenario is intended to inspire the designing of new communities with the natural environment as the starting point. This foundation will inform the design of the built environment that primarily considers important ecological features. These features should be protected and ecological function should be maintained wherever possible and enhanced through incoming development.

The following section highlights the three parameters that will help to translate the vision and guiding principles from conceptual ideas into action. Precedent photos were chosen to exemplify what these planning and design interventions could look like in practice.

Nature Close to Home

The Decoteau Area is expecting significant population growth over the next 30 years and will require the thoughtful design of a parks and open space system to allow all residents to be able to easily engage and experience the Emerald Crescent (Stantec, 2014). One important element acknowledged within the Breathe Technical Analysis, is the value of having a park or open space within an approximately 15 minutes, or 400 metres, walk (City of Edmonton, 2017). As the new neighbourhoods of Decoteau are being planned, thoughtful consideration must be given to the design of the park and open space network to ensure new residents

The identified park system in Decoteau ensures that most areas will be within this 400-metres threshold, identified in the map above. The Central, Southeast and Southwest Neighbourhood Units in particular will need to ensure that the design of new communities clusters housing in a way that supports access to nature. This principle of ensuring nature is close to home is embraced in Stockholm, where more than 90% of residents live within 300 metres of a green space (City of Stockholm, 2010). The Decoteau Area should embrace this principle and ensure that 100% of residences have easy access to nature. In areas that have less existing natural green spaces, it is encouraged that re-vegetation of native plant species be planted. This would allow all residents to have access to nature, and can also be used to accommodate wildlife movement throughout the area.

The benefits of having access to nature is well documented, and can have positive impacts on mental health and well-being (Kuo, 2008). By having access to natural areas and green environments people have demonstrated the development of stronger

Reading in the park was expressed as a preferred activity within 10 minutes of their home from the Insight survey.

Design with Nature

Destination

neighbourhood and social ties, which will be important elements of building a new community within Decoteau (Kuo, 2008).

Having access to green or natural areas offers residents a variety of different experiences and programming activities. Respondents from the Insight Survey felt strongly about having access to nature within a 10-minute walk from their home for reading a book or visiting their local community garden. Respondents also felt that having access to natural, untouched spaces were also important for hiking and wildlife photography. This promotes a variety of activities and options for different programming in destination areas as well as spaces that are less structured but offer ample functions and activities.

400m Catchment Areas around Parks

Active trails help to encourage healthy living.

Maintaining Natural Buffers

The City of Edmonton has identified their intention to integrate wetlands into new and existing developments as a strategic objective within The Way We Grow (City of Edmonton, 2015). In order to achieve this objective, action will be needed to establish protected buffers and riparian areas around all Environmental Reserves (City of Edmonton, 2011). As mentioned in Section 3.4, Edmonton's Environmental Reserve Guidelines places a minimum 30-metres buffer from the wetlands edge for the purpose of pollution prevention (City of Edmonton, 2012). This buffer adds restrictions on new development to maintain the ecological health of these sensitive habitats and the wildlife that depends on them.

Enabling human access to sensitive environmental areas will have to be strategically designed to ensure this access does not negatively impact the integrity of the habitats people are looking to explore. The use of trail development, boardwalks, and signage can guide usage along established trails and help redirect passive human activity from sensitive areas.

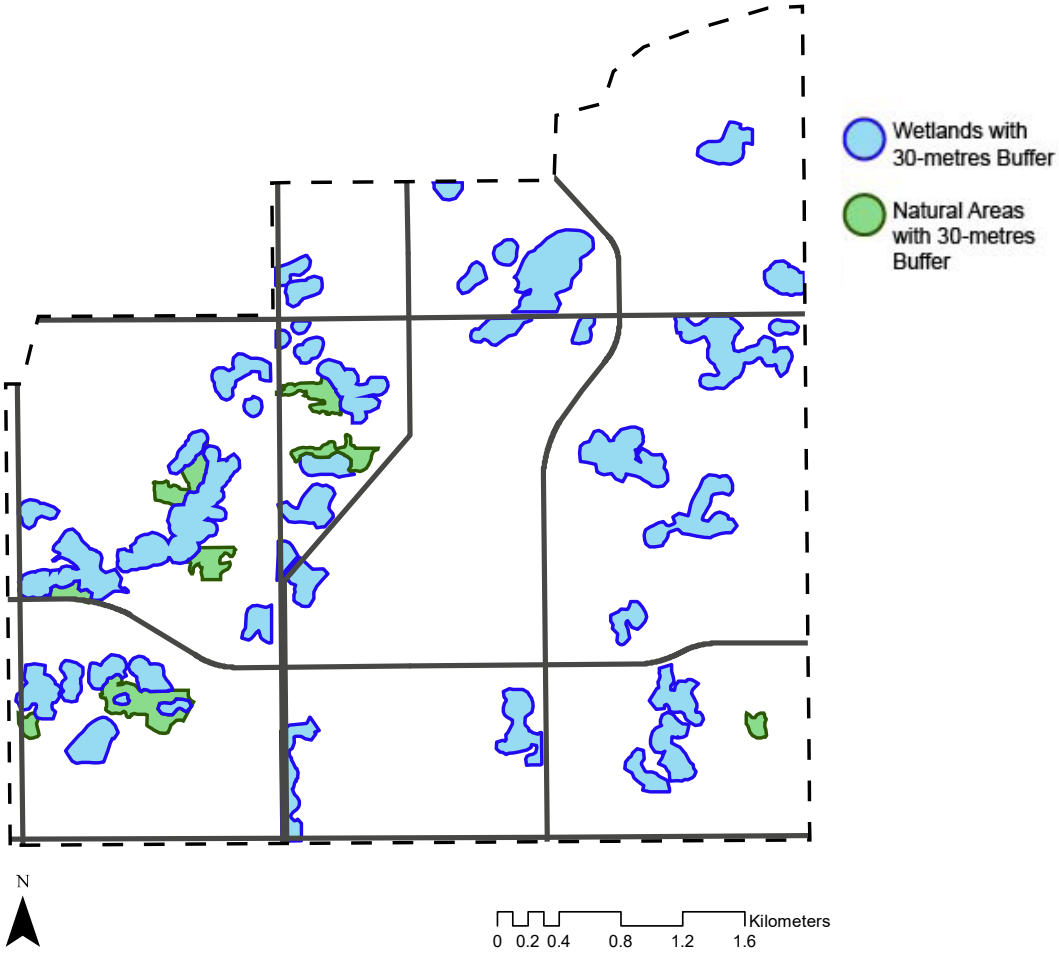
The successful use of boardwalks in wetland habitats has been demonstrated at Evergreen Brickworks in Toronto's Don River Valley, among other notable examples. Here a series of constructed wetlands support various invertebrate and turtle species and keep visitors on the trail and away from areas of open water and native plantlife. This reconstructed wetland has been established on the site of a former aggregate pit and accommodates over 500,000 annual visitors to the Brickworks site every year (Evergreen, n.d.). The landscape design for Evergreen Brickworks is an excellent example of enabling access to nature, while still guiding usage to specific areas.

Boardwalks help to connect people to nature and guide them along established trails.

"Low Impact Development is a storm water management strategy that seeks to mitigate the impacts of increased run-off and stormwater pollution by managing runoff as close to the source as possible" (Credit Valley Conservation, 2010).

Ensuring Low Impact Development methods are used in the building, design and siting of new communities within the Decoteau Area will help maintain natural water movement and embrace natural systems that are present within the area. The City of Edmonton has already developed a Low Impact Development Best Management Practices Design Guide (City of Edmonton, 2014). Ensuring Low Impact Development methods throughout Decoteau and in areas close to important surface water features will help manage stormwater effectively and maintain hydrologic flow in the face of new development (CIty of Edmonton, 2014).

Environmental Buffers



Wetlands and stormwater management ponds are key parts of low impact development.

Iconic Spaces

Within the Emerald Crescent, the City of Edmonton has identified a District Park within the Central Neighbourhood Unit (Stantec, 2014). This site is intended to be a key celebration node for residents of the new Decoteau Area as well as to draw in visitors from across Edmonton. The park is accessible from Ellerslie Road and connects with important natural features like Ellerslie Lake and linear connectivity pathways like the Utility Corridor (mentioned below) (Stantec, 2014). Within the *Breathe Strategy*, the City has identified celebration as a key theme that "connects people to each other and builds a sense of place" (City of Edmonton, 2017). This District Park should be designed in such a way that it becomes an iconic centrepiece of the Emerald Crescent and key site for culturally important celebrations within the Decoteau Area.

Across the Emerald Crescent network both programmed and unprogrammed spaces should be considered. This will allow for the design of community hubs and the ability for neighbourhood groups and community leagues to create their own special spaces. Inspiration can be drawn from Deer Lake Park in Burnaby, BC. This iconic "cultural precinct" boasts an extensive trail network which provides connection to the lake and allows for a wide range of passive and active uses (City of Burnaby, n.d.). Similar to the context in the Decoteau Area, Deer Lake Park is within a suburban context and hosts a number of festivals and outdoor concerts for local residents and visitors across a wider region. This precedent helps to shed light on the central role that a suburban park can play in a community.

Within the City of Edmonton, a number of great examples already exist of building iconic places that draw in visitors. The use of public art and innovative structures that enable four-seasons usage of parks are particularly important for a winter city. Within Borden Park, at 112 Ave. NW, is the iconic Willows structure as well as the mirrored Borden Park Pavillion (Livesy, 2016). These structures have catalysed an important rejuvenation for Borden Park and draw in many visitors. The Pavillion was commissioned through a national design competition in 2011 and provides important four-seasons, heated amenity space to help encourage usage all year round (Livesy, 2016).

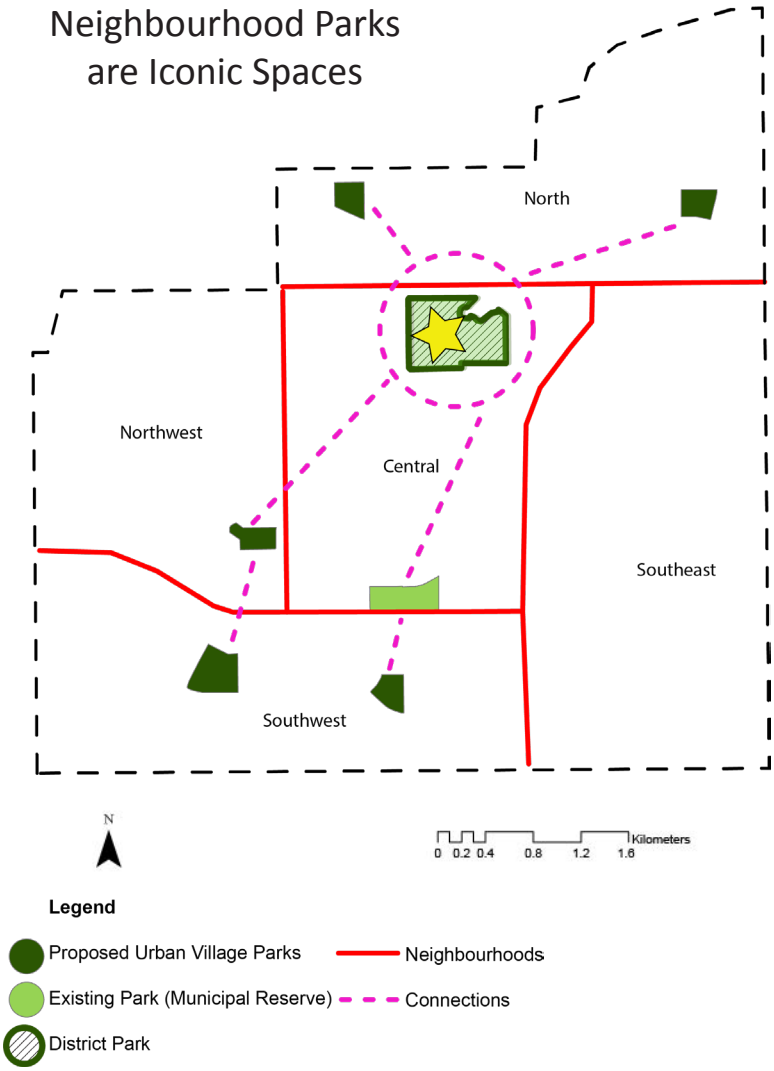
Encouraging the usage of parks space in the winter time is engrained in Edmonton's Winter Design Guidelines which state that "public spaces support outdoor winter programming, recreation and everyday winter life" (City of Edmonton, 2016a).

Another popular example of innovative ways to encourage park use in the winter comes from Toronto's Winter Station installations. In Toronto's Beaches neighbourhood, an annual design competition transforms a series of lifeguard stations into temporary art installations (Altman, 2017). These temporary structures help attract visitors to a typically under-utilized area in winter months (Altman, 2017).

Building from precedent examples in Toronto and local examples like the temporary Warming

Winter warming pavilion in Borden Park in Edmonton, March, 2018.

Huts that have constructed in Edmonton in the past (City of Edmonton, 2016a), the Decoteau neighbourhood can inject excitement into the Emerald Crescent system by encouraging the use of public art, warming stations into key community hub areas in winter months. Public art provides cultural, social and economic value to public spaces. It can animate the public realm and provides a more whimsical connection between people, culture and the built environment while removing barriers of access.



Deer Lake Park in Burnaby hosts many events and festivals in a suburban context.

5.3.2 Scenario Two: A Place to Connect "Weaving It Together"

"The Emerald Crescent is envisioned as a seamlessly integrated network that allows for easy movement and connections for people, wildlife and water within the Emerald Crescent and beyond."

Strategy of Scenario Two A Place to Connect

This scenario embodies Flow and Adapt as the two main guiding principles. These principles showcase the Emerald Crescent as a catalyst in creating a connected, integrated, and multi-functional landscape for people, wildlife and water. Though Decoteau is an area with formal boundaries, people, wildlife, and water are not confined to them. This scenario emphasizes the importance of flow of movement and multi-functionality in order to allow for flexibility and resiliency to changes over time.

The following section highlights the three parameters that will help to translate the vision and guiding principles from conceptual ideas into action. Precedent photos were chosen to exemplify what these planning and design interventions could look like in practice.

Human Connections

The Decoteau community should be designed to allow for the safe and efficient movement of people both inside and outside the boundaries of the ASP. Planning and design interventions should focus on leveraging existing infrastructure, as well as providing the necessary amenities to encourage residents to use active modes of transportation for both commuting and recreational purposes. Furthermore, the interventions should acknowledge that this will be a car-oriented community and therefore, connections to the Anthony Henday highway should be emphasized.

The existing utility corridor provides a significant north-south connection in the Decoteau community. There are numerous opportunities associated with this piece of infrastructure. By activating the utility corridor in an intentional way, it can become a major connector in the heart of the community. Whether viewed as a place to enjoy a leisurely stroll through the neighbourhoods, or a significant pathway that leads to the planned transit hub, the utility corridor has the potential to serve a wide variety of needs.

The Finch hydro corridor in the north-end of Toronto provides an example of how design interventions can transform a hydro corridor into a multi-use pathway that connects between destinations in different parts of the city, providing a high degree of connectivity to district parks, and

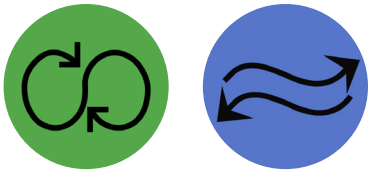
Bicycle lockers in Winnipeg near a transit station.

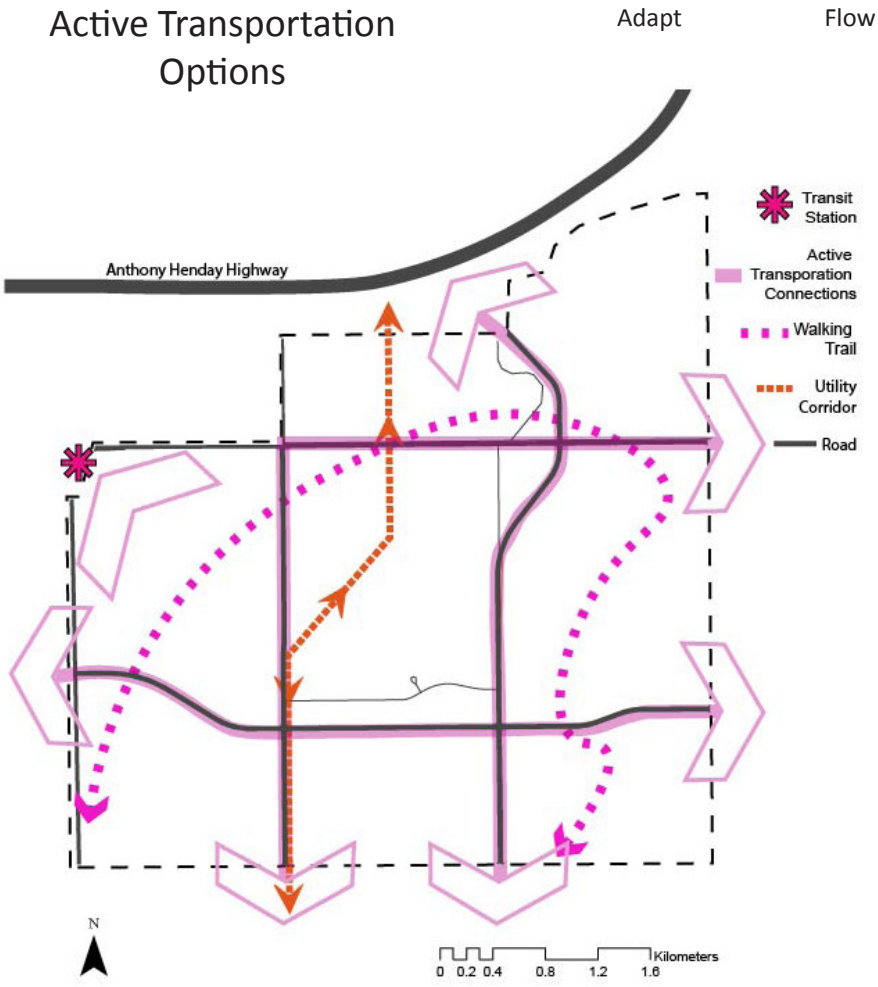
other trails (City of Toronto, n.d.).

Toronto's recently announced Meadoway project plans to use an existing hydro corridor to create a 16 kilometres linear park across the city. This is a great example of a public-private partnership that will take an under-utilized utility corridor and transform it into a public asset that will connect four ravines, 15 parks and 34 neighbourhoods (Shahzad, 2018)

The promise of a planned transit centre at the intersection of 50 Street SW and Ellerslie Road SW, which is located at the northwest corner of the site (Stantec, 2014), presents an opportunity to encourage residents to use active transportation as part of their daily commute to work. The provision of amenities, such as bike lockers at the transit hub, will help to make the prospect of cycling much more appealing for the first and last mile of daily commutes. The City of Winnipeg serves as a notable example of how the presence of bike lockers at major transit nodes can help to encourage more active transportation throughout all seasons (Winnipeg Transit, n.d.).

The incorporation of a trail network in Decoteau will provide opportunities for people to walk, roll, cycle or even cross-country ski around the community. Inspiration was drawn from Ottawa-Gatineau to demonstrate how thoughtfully designed trail networks can serve as shared pathways for many different modes of transportation, across all seasons.





Utility Right-of-Ways provide for active transportation opportunities.

Multi-functional Spaces

The identification of spaces that can serve a myriad of different functions acknowledges the previously identified constraint surrounding the financing of parks and open spaces.

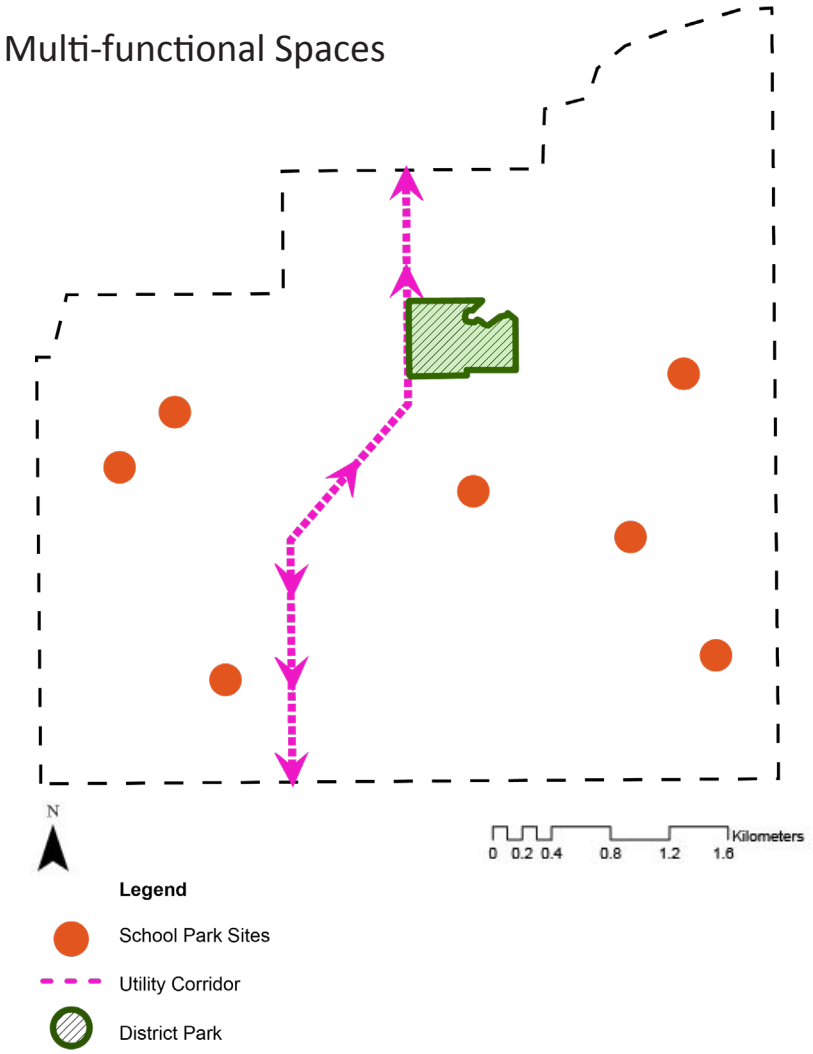
The utility corridor has been identified as a an opportunity area for human mobility connections, however this space could also serve other functions, such as a community garden that could be used for local food production. This is aligned with the policy goals of *Fresh* (City of Edmonton, 2012), which were mentioned above in section 3.4.

Roper Pond in Edmonton.

School sites were identified as keys areas that could serve a multitude of different functions. Schools should be designed to serve both an academic and ecological function. For example, schools could be key sites for community gardens. Given that planning for uses is occurring prior to the existence of the schools, a unique opportunity exists to collaborate with the schools to proactively plan for a multi-functional design. The orientation of the schools is crucial to ensure the parks are open to the public during non-school hours.

It will be important for the parks and open space system to become a community asset, both for recreation and ecology, as well as green infrastructure. These spaces can be designed in a multi-functional way that will enable opportunities for connection and celebration, but also accommodate elements of living green infrastructure (e.g. storm water retention). By incorporating green infrastructure into parks, the City of Edmonton can simultaneously deal with the current and projected effects of climate change.

Stormwater management ponds can be designed to look like wetlands, such as Edmonton's Roper Pond Constructed Wetland, a stormwater treatment facility which was designed to emulate a marsh ecosystem (City of Edmonton, n.d). This could potentially be located near school park sites to maintain the seamless connection of the wetland network in the Emerald Crescent.



School sites act as multi-functional spaces for learning and food production.

Ecology Connections

Growth and development in the Decoteau community should occur in tandem with the preservation of the ecological network. It is therefore imperative that planning and design interventions for the Emerald Crescent consider both the flow of wildlife and water through the landscape.

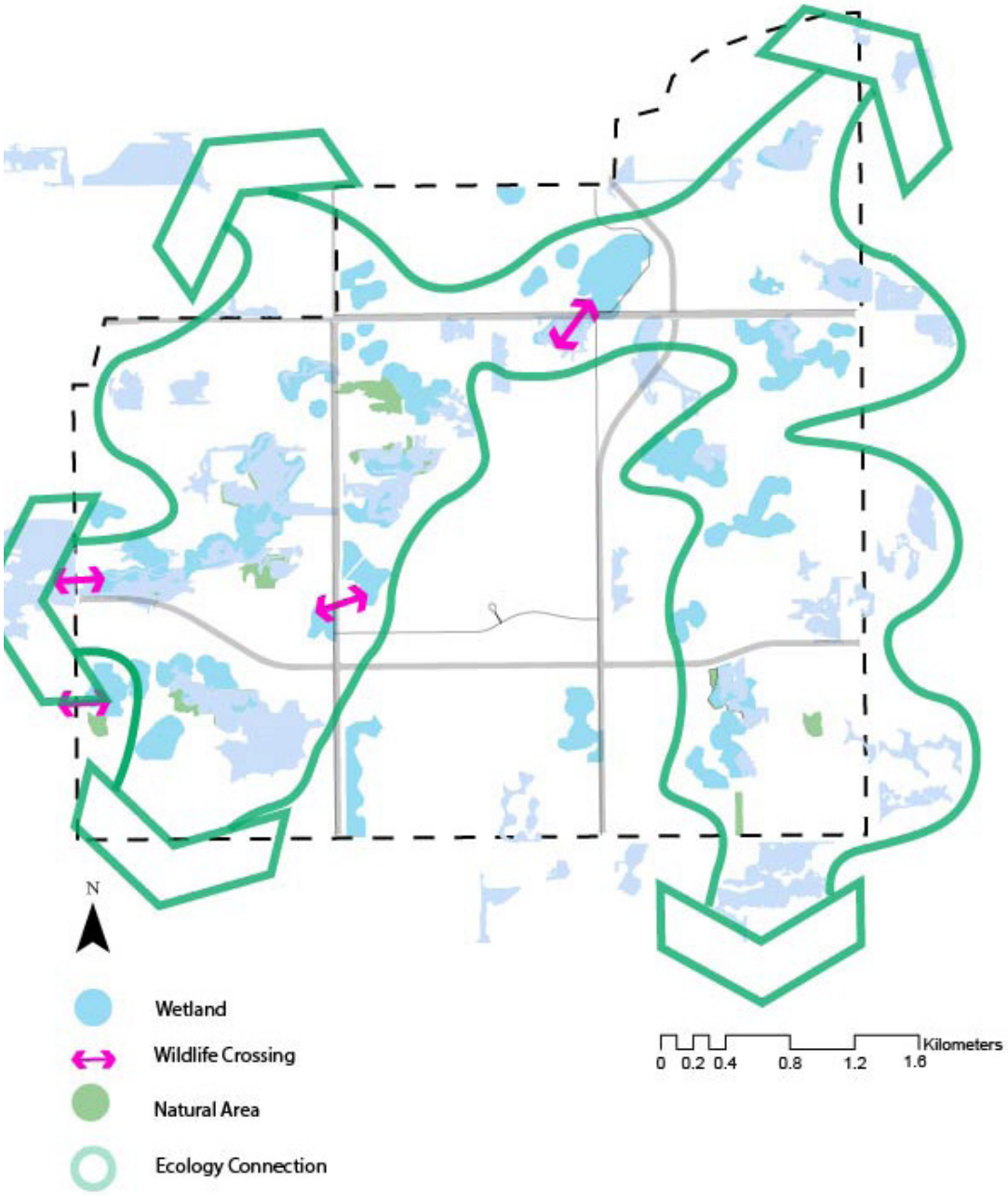
A diverse range of wildlife, including indicator species: chickadee, coyote and sturgeon inhabit this landscape. However, the coming growth and development of the Decoteau area will pose challenges to these species - and specifically to their ability to move safely across the landscape. The development of this rural region will introduce new barriers to wildlife movement and destroy existing habitats (Linehan & Finn, 1995). As previously noted, roads present a significant barrier that challenges the ability of wildlife to move across the landscape. It is important that wildlife crossings of various scales are introduced at key ecology-development conflict areas. Wildlife crossings can be as small as a curb cut to allow the uninhibited movement of salamanders or as large as the 215 Street wildlife passage in Edmonton. Several key sites for wildlife connectivity (passages and crossings) have been identified in the Emerald Crescent, as seen in figure: Wildlife and Landscape Connectivity).

Development practices should be encouraged throughout the site with particular attention paid to the flow of water. Development must occur in a way that does not disrupt the natural flow of surface water which feeds the area's wetlands. The presence of surface parking lots and other buildings will introduce impermeable surfaces that will disrupt the natural flow of water. The introduction of low-impact design interventions, such as bioswale planters, offer solutions to mitigate the impacts of introducing hard-surfaces to this landscape.

Bioswale planters and medians help to reduce the volume of stormwater runoff, promote pollutant uptake through soil and vegetation, and increase groundwater recharge. The City of Portland is a notable precedent as the City "recognized a need for both internal coordination and promotion of sustainable stormwater management systems Citywide" (Water Environment Research Foundation, 2004). For example, the City created a Sustainable Infrastructure Committee in 2001 which seeks to mitigate the impact of City development projects on water quality and movement through a number of interventions such as porous pavements (Water Environment Research Foundation, 2004). Furthermore, they work with a number of stakeholders such as landowners, government agencies and the federal government to create policies and site-specific programs that seek to incorporate low impact development interventions into the design of the site (Water Environment Research Foundation, 2004). This example provides valuable insight into how the City could work with developers to implement sustainable design interventions.

Bioswales in Portland help with stormwater management.

Wildlife and Landscape Connectivity



Accommodating wildlife is across all scales and even includes small culverts.

5.3.3 Scenario Three: A Place to Explore "Getting to Know Your Landscape"

The Emerald Crescent will be a place that offers multiple opportunities for staying curious, wanting to explore, and engaging with your landscape - all year long."

Strategy of Scenario Three: A Place to Explore

The third scenario emphasizes Inclusivity and Discover as the main guiding principles. This scenario is predicated on the idea that providing people with opportunities to explore their landscape, will foster an appreciation of the intrinsic value of these spaces. These spaces therefore need to include thoughtful design interventions that balance ecological conservation objectives with the ability to interact with the natural environment. By allowing people to engage with the Emerald Crescent, they will be more likely to advocate for the protection and enhancement of environmentally sensitive areas, and to become stewards of their community.

The following section highlights the three parameters that will help to translate the vision and guiding principles from conceptual ideas into action. Precedent photos were chosen to exemplify what these planning and design interventions could look like in practice.

Nature as your Playground

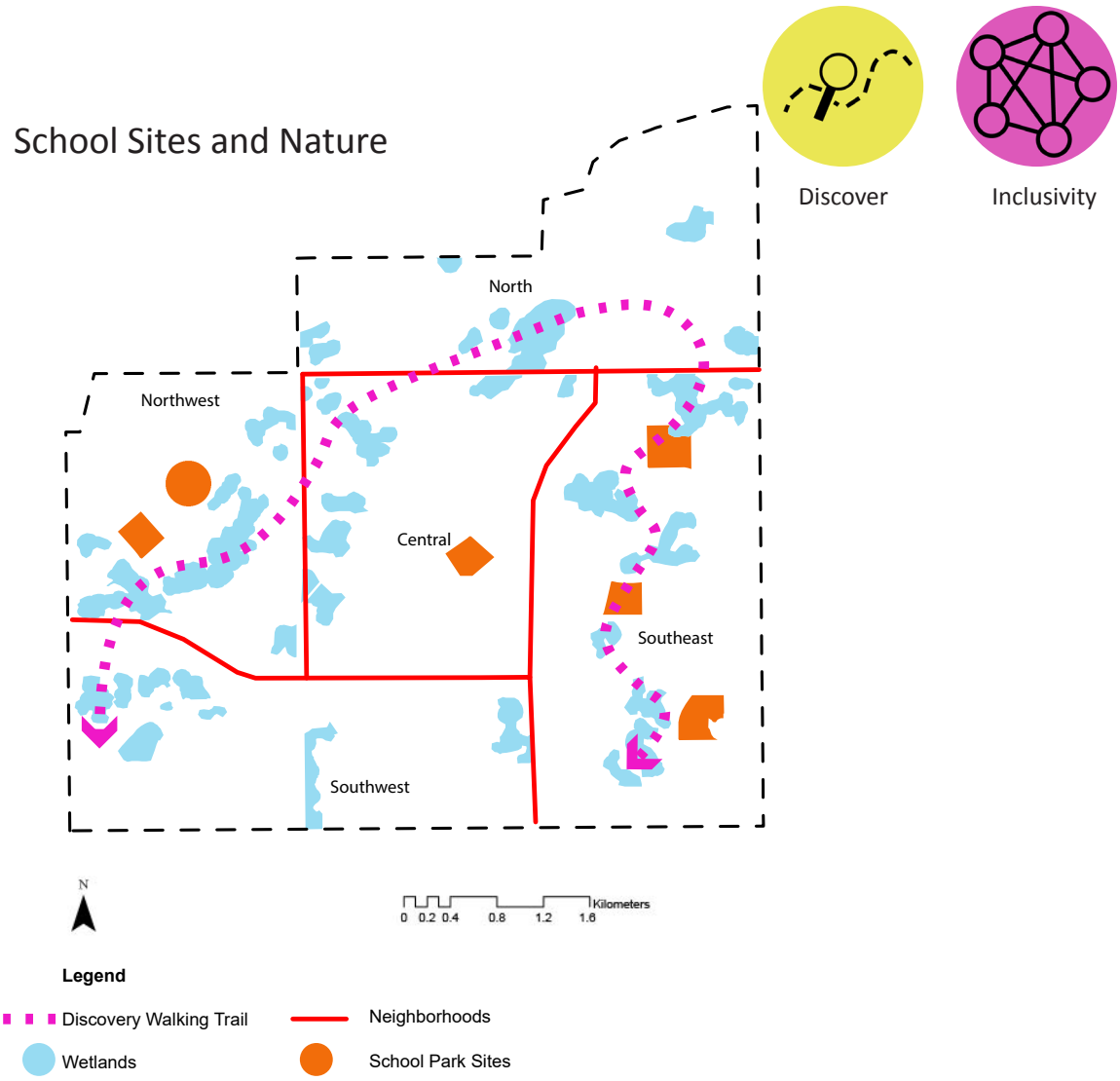
The planned school sites are in close proximity to significant ecological features, including wetlands. This presents exciting opportunities to encourage experiential learning which is aligned with the City of Edmonton Wetland Strategy (2012) which recommends that the City "work with schools and youth programs to instill in young people a strong understanding of the value of natural areas."

Providing access to natural areas such as wetlands and native plant life can help evoke creativity and imagination in school children (Gleave and Cole-Hamilton, 2012). This helps children to develop an awareness and appreciation of their natural surroundings from a young age. There are numerous benefits associated with providing opportunities for children to connect with nature on a daily basis. Stress reduction, increased creativity and problem solving skills, as well as social relationship building are among the many positive impacts associated with experiential education (The Natural Learning Initiative, n.d.).

The Humber Arboretum School Program is a notable precedent that offers a "hands-on, environmental education" (Humber Arboretum, n.d.). Through this program, kids are educated in the areas of recycling, ecological stewardship and environmental monitoring.

Similarly, in the Evergreen Brickworks Children's Garden, children are encouraged to participate in unstructured, loose parts play, with natural elements. This allows for child-directed creativity and healthy risk taking in play (Evergreen, n.d.).

Children can develop an awareness and appreciation of their natural surroundings from exposure to the natural environment.



Evergreen Brickworks in Toronto has many boardwalks and nature play activities for young children.

Nature Trail

The proposed nature trail, as shown by the dashed pink line in the map on page 42, is meant to serve as a community-wide discovery trail. Creating a trail network that passses through all planned neighbourhoods and significant ecological features will help foster a greater sense of connection between different parts of Decoteau as well as an appreciation of the Emerald Crescent.

Ecology was cited as a significant priority by 57% of Insight survey respondents. Similarly, under the wellness category, health and mental well-being was ranked highly by 40% of respondents in terms of what to emphasize in the visioning of the Emerald Crescent. These findings served as the impetus for the creation of a nature trail, as it can provide opportunities for people to both enjoy and learn about their landscape. This engagement with their natural surroundings will help to lay the groundwork for environmental stewardship.

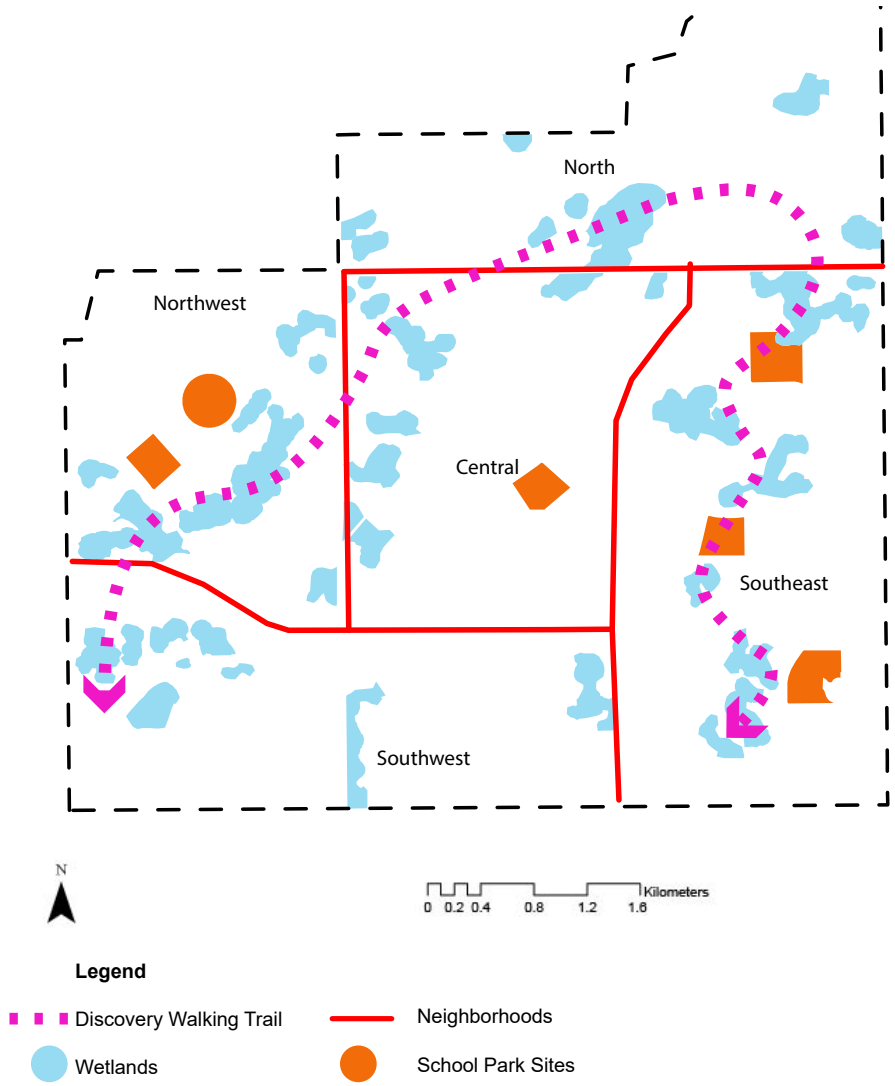
The Emerald Crescent is a part of a much larger natural system, therefore trail networks can play a significant role in linking this community with the *Breathe Strategy* network to foster discovery at a much a larger scale. The presence of a significant trail network will help to make the Emerald Crescent a legible, indexed landscape that can be easily navigated by residents and visitors. Inspiration for the creation of this trail can be drawn from the Bruce Trail in central Ontario and the Don Valley Arts Trail in Toronto.

The Bruce Trail connects over 400 kilometres of parks and open space for hikers to enjoy across a regional scale. It is Canada's longest and oldest footpath. This trail system is an important act of stewardship for the communities it intersects, there are over 1,500 volunteers which help care for, steward, and protect a section of the Bruce Trail (Bruce Trail, n.d.).

Incorporating both iconic art and beautiful trails, the Don Valley Arts trail is a curated series of temporary public artwork taking place along the Don River. Local, national and international artists are invited to create site-specific projects that speak to the many histories and present-day realities of the Don Valley and its surrounding communities – looking at the land from ecological, cultural, industrial and Indigenous perspectives and more (Evergreen, 2018).

Iconic art in the Don Valley in Toronto creates destination points.

Pathways to Connect



Wayfinding on the Bruce Trail in Ontario.

Cohesive Community Identity

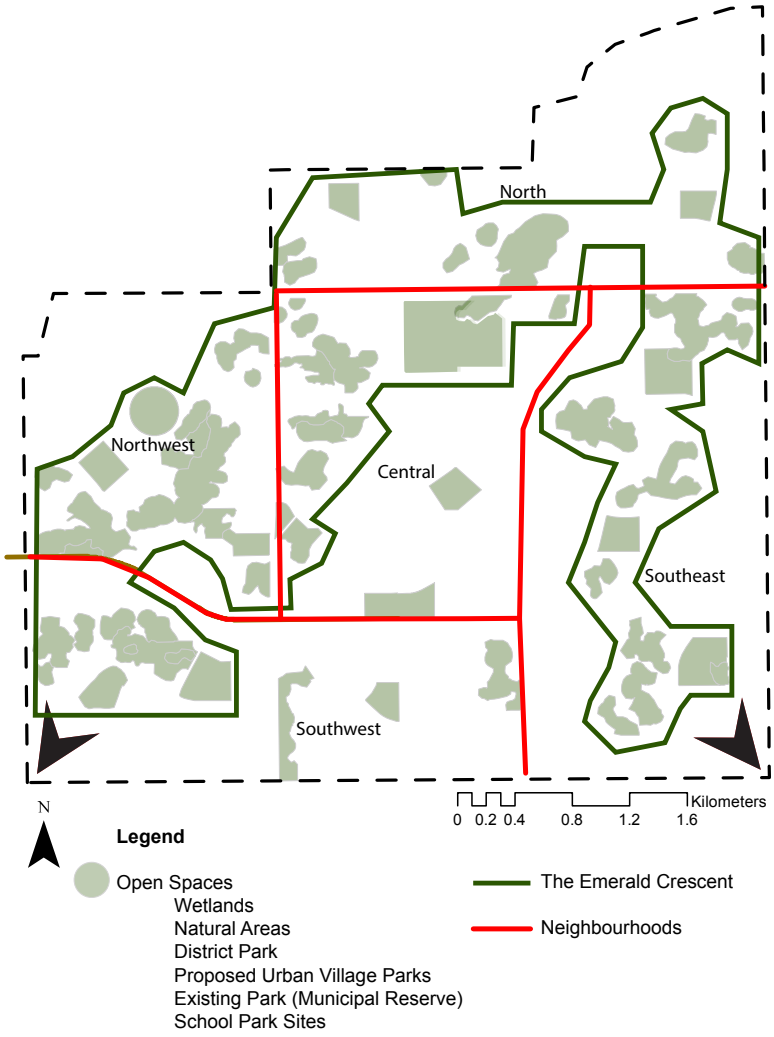
Decoteau will encompass five distinct neighbourhoods, and the connected network of parks and open spaces that make up Emerald Crescent will play a significant role in creating a cohesive community identity for Decoteau (Stantec, 2014). As shown in the map on page 44, the Emerald Crescent runs through all of the proposed neighbourhoods and will be a shared connected park system for all residents to enjoy, regardless of the neighbourhood in which they live in.

The Toronto ravines offer a strong example of how a connected natural system can foster a sense of inclusion and shared identity across a diversity of people and neighbourhoods. The Toronto Ravine Strategy acknowledges the important place-making role that the ravines serve and how they "help to define Toronto's identity on the world stage" (City of Toronto, 2017). The strategy includes "interface criteria" which helps to ensure multiple access points to the ravine, thereby allowing people all across the city to be connected to this valued natural asset. People in Toronto are proud of the ravine system and the Emerald Crescent can also become a place that Edmontonians celebrate and value.

Community identity is promoted throughout all seasons. Edmonton's Winter Design Guidelines understand that winter is a core part of Edmonton's identity and needs to be fully considered as the city grows and matures. In order to realize the full return on the City's investment into parks and public infrastructure projects, amenities should be designed for all-season use so they can be enjoyed in the winter as well as the summer. Dedicated community events, such Winterlude in Ottawa-Gatineau, provide opportunities for place-making and community building during the winter season (Government of Canada, n.d.).

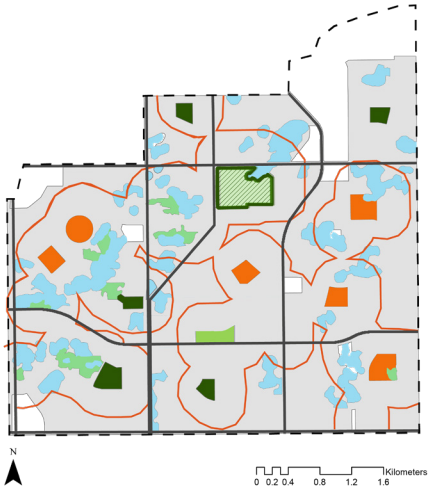
Ottawa celebrates winter by putting on events to create community pride.

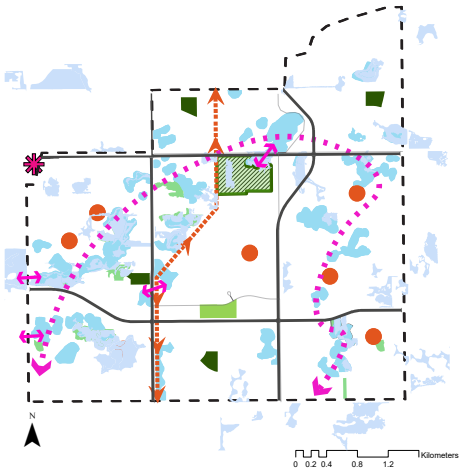
Decoteau's Neighbourhoods

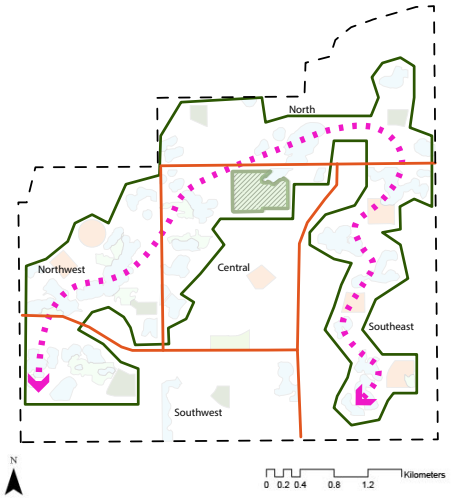


Toronto's Ravines are the backyard for many residents.

6.0 Conclusion







The vision, guiding principles and three complementary scenarios that were developed for the Emerald Crescent are intended to inspire the future direction of planning, design and development of the Decoteau Area.

The culmination of the mixed-methods research approach, outlined above, provided a strong foundation that informed the creation of the vision, guiding principles and three scenarios for the Emerald Crescent. The combination of a desktop analysis of the policy framework and physical conditions of the site were used to identify key opportunities and challenges for implementing *The Breathe Strategy* at the neighbourhood level. This research was supplemented by interviews with key informants and feedback from engaged community members via the Insight survey as well as a site visit.

Through a design charrette, the Studio Team used the aggregation of the research, and ground truthing activities to inspire a vision and three scenarios. The feedback from the Insight survey, interviews with key informants, and precedent research all revealed that a diversity of perspectives and experiences should be considered in the creation of this new parks and open space network.

Next Steps

An evaluation of the three scenarios for the Emerald Crescent revealed several key considerations that warrant further investigation, but were outside of the scope of this Studio. The issues identified below set the foundation for future research and action needed in the development of the Emerald Crescent:

Monitor Wildlife Habitat

• Leading with landscape calls for development that works with nature, not against it. Recognizing that development will always inevitably alter the natural environment, the significant wetlands and hydrological features will be affected, often negatively. Monitoring the watersheds will ensure ongoing learning which can lead to improved opportunities to address or avoid negative impacts so that the City can be proactive rather than reactive. Monitoring and tracking of wildlife will also be important as their habitat is greatly impacted by the anticipated growth.

Wildlife Connectivity

• Explore multi-functional crossing options for both humans and wildlife at 50th Street SW across Ellerslie Road, 17th Street across Ellerslie Road and the Anthony Henday highway.

Civic Engagement

• Although our survey findings were based on 357 respondents, there are more voices and perspectives that need to be included in the discussion about possibilities for the Emerald Crescent.

• Decoteau will be home to a diversity of people, and so including the voices of youth to gauge the types of activities, spaces, and elements that are important for them will be attractive features within the Decoteau which will help retain and attract young talent to live and work in the area.

• Edmonton has a rich Indigenous history. It is recommended that the City develop a partnership with indigenous groups in order to work collaboratively in the design and function of the Emerald Crescent. Partnership through building trust with Indigenous groups can be an important opportunity to build on Traditional Ecological Knowledge. This can supplement the work around wildlife crossings and urban agricultural goals for the Decoteau Area, and contribute more broadly to local Truth and Reconciliation goals and objectives.

Evaluation and Documentation

• The City of Edmonton is in a unique position to become a leading example for other cities around the world to showcase how to lead with landscape. It is recommended that the City of Edmonton document decisions, actions, and implementation plans in order to track the progress of the Emerald Crescent. This would allow other cities to learn from and attempt to implement in their own city.

Mill Creek Ravine in Edmonton, March 2018.

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8.0 Appendix

8.1 Stakeholder Feedback

The following summarizes the feedback received on March 2, 2018 in a World Cafe style stakeholder session in Edmonton Tower, City of Edmonton. Stakeholders included City of Edmonton staff, development consultants, environmental non-profits, and neighborhood services groups. The discussion was separated into four small groups, which focused on: 1) Opportunities, 2) Constraints, 3) Scenario Development, 4) Engagement.

Table summaries:

Scenarios table

Question: What experiences, situations, functions would you like to see in the Emerald Crescent?

- Nature close to home
- A place to hike/walk with only pedestrians
- A place to escape the city
- A place to slow down and disconnect
- Protection and identification of significant and unique wetlands (including doughnut wetlands)
    - Many of the wetlands are at the top of the hills, which is very unique
- Maintain landscape features and rolling topography
    - The viewscapes are incredible here because of the hills
- Trails system for connectivity of people at a large-scale
    - Look at ice age trail and bruce trail for inspiration
    - This can be a defining element of the neighbourhood
- Festivals are most often held at the same grounds in the city, this could offer an opportunity to hold important festivals in a new area
    - Could offer year-round opportunities
    - E.g. flying canoe festival
- A “nature notebook” for the area including a checklist of the local birds, flora, etc… would help to build residents understanding of where they live
    - Educational opportunities: wetlands are covered in the grade 5 curriculum
    - Would be good to teach the teachers about the local landscape
- Community gardens (food and natural vegetation)
- Community Leagues

    - Community League License areas are neighbourhood developed areas for shared amenities
    - Example to look at: Roberta McAdams school has good interpretive signage
    - Could tie in celebration events that connect the community together
- Road configuration: can they be made more friendly for wildlife?
- Regional place-making opportunities here
    - Creating an important identity
- Wayfing and education opportunities
- Active transportation
    - A network that connection with the “main attractors”
    - Biking, x-country skiing
- May need a concentration of high intensity recreation… this will help take the pressure off natural parks as well
- Important areas to preserve:
    - Prairie doughnut wetlands
    - Natural vegetation: areas could also be replanted to better match the original vegetation
- Stewardship opportunities to recreate the original vegetation: there is a unique opportunity here to recognize this unique geology
- Integrate wildlife-friendly lighting (for nocturnal animals)
    - Also may want to consider preserving dark sky in areas
- Create a “destination area” and other smaller neighbourhood areas
- Need to be thoughtful about wildlife and dog interactions (especially in homes near wilder areas)
- Integrate “Pocket Parks” -- areas that may be close to homes or some of the mixed-use areas
- Programming opportunities here are unique to the rest of the city because of the natural features
    - There are opportunities for unstructured exploring
- The District Park is important, but the network relies on different spaces with different opportunities
    - This can tie in to celebration spaces
- Will need to be conscious of managing natural areas for heightened population
    - Good example to look at: boardwalk at Clifford E. Lee Park

Scenario options

1. Destination areas
2. Decentralization (diffusion) of areas/parks/elements
3. Connectivity (i.e. connecting the decentralized sites with the core/destination areas)

- Areas that attract Edmontonians in
- Areas that are built to serve the Decoteau community

1. Wellness, Ecology, Celebration
2. Connectivity of Parks, people and infrastructure
3. Land Use
    a. What would be the best options here… complete communities… integration of green spaces

1. Programming
2. No programing
    a. I.e. informal spaces, minimal design
3. Pop-up
    a. I.e. flexible spaces

Constraints Table

1. What are some key challenges associated with introducing significant population growth to an agricultural landscape with ecologically sensitive areas?
    - Development of a community identity for the area --"I live in Decoteau."
    - Make this a community where people want to live/stay/identify with (rather than just a place where they live and then go to the City for entertainment/recreation)
    - Development planned for north of Cos Lake - threatens to dry it out
    - Density is a concern - needs to be well designed (35 dwellings/400 ha)
        - 30 m buffers - How do you design a community with sufficient buffer for the wetlands and for maximization for land for the developers
        - Development constraint - some buffers can exist in perpetuity
        - Now developers are asking well okay if we do XYZ can we encroach on the buffers?
        - How are buffers regulated? Are the public kept out sufficiently?
    - Cluster Housing - use special zoning to protect land and be sure to classify uses so that people and sensitive ecology can be kept kinda separate
        - This is challenge because you can control the built form but cannot control what people do (thoughtful design interventions needed)
    - Keep in mind changing perception of design/ideas (i.e. naturalized backyards)

- Mountain bikers will carve their own path - so be sure to work with them to create designated paths, like designated off leash dog areas are created
- Yard space is so manicured and people put lots of contaminants on it, need things like a lagoon/stormwater swale maybe to mitigate?
- Wetlands are iterative filtering and collapsing
- Bonus- we have time on our side! 30 years is a long time
- Commercial areas are a big detriment to sensitive ecology - paves it all for car parking lots
- Increased land value because the wetlands are an asset - selling point
    - But are they amenities?
- Low-Impact Development is a best practice - work with the landscape
- Perceived safety issues associated with locating schools near wetlands

2. In your professional opinion, are there any barriers to implementing wildlife crossing structures?

- Nocturnal wildlife in the area and so fire can make for a not so nice time for them. Houses are all made of wood so they can go up like kindling and destroy homes and makes grasslands catch on fire

3. Were there any stakeholders that were not present in the creation of the Emerald Crescent? Are there any conflicts between stakeholders that may arise as the planning and development process moves forward?

- Jurisdictional barriers related to EPCOR and other city agencies. Stormwater management would fall under a few different categories
    - Need to create a seamless stormwater management wetland

4. Do you think we missed identifying any key constraints?
    - The city is so spatially large and needs to be better connected
    - Don't just cut and fill
    - Natural areas are seen as a constraint but some and as an opportunity for others
    - Developers must be the champions of this in order for it to work
    - **Hydrologic Change (movement of water)**
        - When you add roads/houses and other impermeable surfaces you are disrupting the natural flow of water (much is surface fed on the site)
        - How will water continue to move throughout the system?

    - Need stormwater management ponds that look like wetlands (seamless integration of natural and built systems)

5. Given the large diversity in the identified constraints, trade-offs will inevitably need to be made. What is your process for navigating these trade-offs? How would you prioritize the different constraints in terms of the level of attention that should be given to them when creating our scenarios

    - Development feasibility. While limits need to be placed on development to protect the natural area, it it important that these limits do not hurt the development potential. Developers are ultimately the builders of the community and the City does want this to be a nice community that people want to live in. **Challenge is finding the appropriate balance between wetland conservation and development feasibility.**
    - Expanding the buffers so that more land is protected as ER will take away some of the gross developable land → development challenge
    - Profit versus Preservation: Low impact Development is key
    - What % should be open to humans?

Other Thoughts that were outside of the questions:

- Chapelle Gardens / Mill Creek (natural corridors) - check out
- Suburbs and isolation - need to draw people out
- When looking at the demographics of Decoteau look at Chapelle and Ellersely, will be the most similar
- South of the Henday is majority first time home buyers. Biggest question for people living here is - how quickly can I get to the Henday?
- City bus stigma
- People who are living in the early stages here are buying into potential
- What do we do with tiny amount of spaces acquired through development process (might not be linked to larger system)
- Connection with other neighborhoods
- Both an opportunity and constraints (lots of people coming to neighborhood than just residents)
- **Wetland Conservation Plan** = provincial funds used to restore high priority wetlands (even if they have not been identified as being in the ESA)

Opportunities Table

School Parks

- What are the limitations to creating recreation opportunities at school sites for public use? How might we overcome these limitations? Can you offer any insight into this potential precedents?

- A "nature notebook" for the area including a checklist of the local birds, flora, etc… would help to build residents understanding of where they live… connect them more directly with the landscape
- Educational opportunities: wetlands are covered in the grade 5 curriculum
  Would be good to teach the teachers about the local landscape… this nature notebook could be used to inform area teachers about the region they are teaching
- Community gardens (food and natural vegetation)
- Eco school
- Connectivity in the site and between the site and its surroundings
- Bring nature to the neighbourhood
  - At the school sites
  - In parks
  - Are there opportunities to bring nature to people… to decentralize nature?
- Design to reduce crime
- Bushwhack areas

Utility Corridor

- What types of activities can you imagine occurring in these spaces? Can you think of examples of the way these spaces have been used in other places? Keeping in mind the limitation of electromagnetic activity and potential human health implications, can you think of perhaps temporary programming? What might this corridor mean for the ecology of the area? Would it be good use as a cross would it pose more of a constraint to wildlife crossings?

- Trails system for connectivity of people at a large-scale
  - Look at ice age trail and bruce trail for inspiration
  - This can be a defining element of the neighbourhood

Roads

- Although you have seen or will see that roads operate as a constraint as well, how might we optimize these spaces as connections for humans?
- What do you think about potential active transportation routes?
- Would cycling lanes and sidewalks be appropriate suggestions given the context?

- Active transportation
    - A network that connection with the “main attractors”
    - Biking, x-country skiing
    - Some of this can be achieved through very well designed sidewalks

- Road configuration: can they be made more friendly for wildlife
- Will need to be conscious of managing natural areas for heightened population
    - Good example to look at: boardwalk at Clifford E. Lee Park
- Regional place-making opportunities here
- Creating an important identity
    - Where applicable, permeability of surfaces should be encouraged
- Seamless integration and transition between different part of the connected park system
- Wildlife crossings missing opportunities in the NE of site
- Bioswales
- Natural areas can be used for stormwater management
- Use of lighting to help make it friendly throughout the year and both in the evening and during the day.
- Show images of built form precedents
- Some areas for people first and ecology first

Transit Hub

- For city staff, what is expected to happen in terms of the transit hub? Will it be serviced by buses most likely?
- What will be the broader connection between this transit hub and the city? How will it connect with the anticipated LRT?
- Given experience within the city, should we expect high levels of ridership? (Our research indicates the area is highly automobile dependent)
- Are you looking to attract people to the Emerald Crescent from the city for recreational activities? Or are we just planning for the community within the Emerald Crescent?
- Where do you see opportunities for a multi-purpose trail connecting to the transit hub?

District Park

- What might occur in this park?
- How might this park be different from other parks in the area?
- Festivals are most often held at the same grounds in the city, this could offer an opportunity to hold important festivals in a new area
- Could offer year-round opportunities

    - E.g. flying canoe festival (look at for precedent)
    - Create a “destination area” and other smaller neighbourhood areas
    - Design a place to slow down and connect with nature
- Protection and identification of significant and unique wetlands (including doughnut wetlands)
- Maintain landscape features and rolling topography
    - The viewscapes are incredible here because of the hills
- Design guidelines that advocate for less private green space and encourage more communal green spaces which can be seen as a community amenity

- May need a concentration of high intensity recreation… this will help take the pressure off natural parks as well
- Integrate “Pocket Parks” … areas that may be close to homes or some of the mixed-use areas
    - For kids to have close to home and for people to eat lunches in
- The District Park is important, but the network relies on different spaces with different opportunities
    - This can tie in to celebration spaces

Other Thoughts

Community Leagues

- Community League License areas are neighbourhood developed areas for shared amenities
- Important partners
- Example to look at: Roberta McAdams school has good interpretive signage
- Could tie in celebration events that connect the community together

Important areas to preserve:

- Prairie doughnut wetlands
- Natural vegetation… areas could also be replanted to better match the original vegetation

Stewardship opportunities to recreate the original vegetation… there is a unique opportunity here to recognize this unique geology

Integrate wildlife-friendly lighting (for nocturnal animals)

- Also may want to consider preserving dark sky in areas

Need to be thoughtful about wildlife and dog interactions (especially in homes near wilder areas)

Can we diversify the land use?

- Can this become an area where people live, work and play?

Programming opportunities here are unique to the rest of the city because of the natural features

- There are opportunities for unstructured exploring

8.2 Surrounding Amenities

Table 1 – Connectivity to Educational Institutions

Educational Institution	**Distance from Site**	**Estimated Driving Distance**
University of Alberta	22 km	27 minutes
MacEwan University	24 km	31 minutes
Northern Alberta Institute of Technology	36 km	31 minutes
Concordia University of Edmonton	19 km	24 minutes
The King's University	12 km	16 minutes

Table 2 – Connectivity to nearby major shopping centres

Name of Shopping Centre	**Distance from Site**	**Estimated Driving Distance**
South Edmonton Common	8.3 km	11 minutes
Mill Woods Town Centre	6.7 km	10 minutes
Southgate Centre	16.6 km	17 minutes

Table 3 – Connectivity to nearby parks and outdoor amenities

Name of Park	**Distance from Site**	**Estimated Driving Distance**
Ivor Dent Sports Park	2.7 km	5 minutes
Walker Park	2.5 km	3 minutes

Summerside Park	5.5 km	8 minutes
Gateway Park	8.1 km	10 minutes

Ryerson University
School of
Urban & Regional Planning
Faculty of Community Services

Designing the Emerald Crescent for the Decoteau Area Structure Plan: City of Edmonton

Faculty Supervisor: Professor Nina-Marie Lister, MCIP, RPP, Hon ASLA
Office Hours: Wednesdays 14-16h or by appointment at nm.lister@ryerson.ca (*Note that office hours may change throughout the term so please check posted hours weekly)*

Client: City of Edmonton

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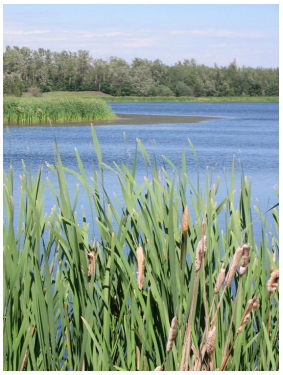

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Project Overview

A Unique Planning Context

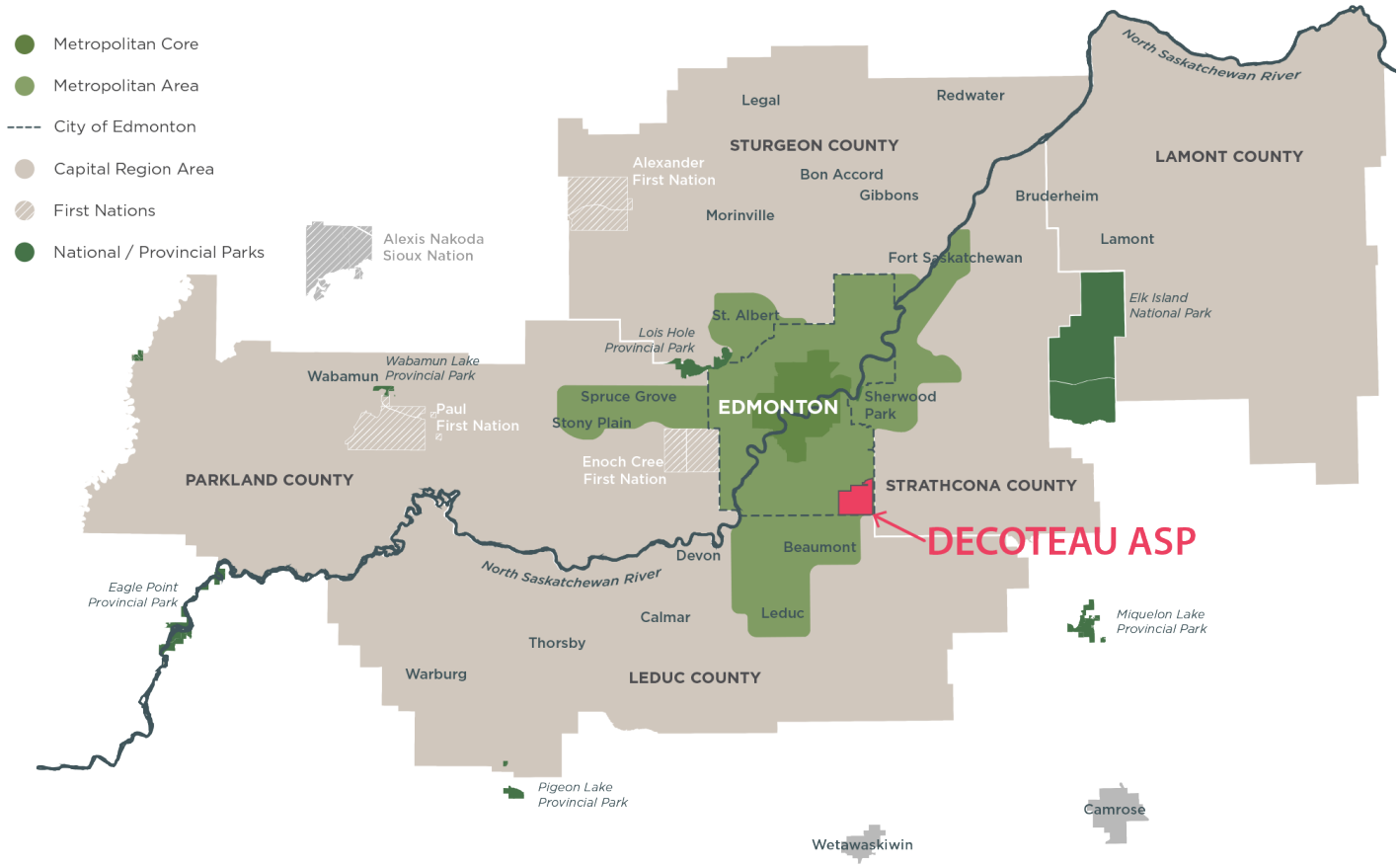
In 2015, Edmonton City Council approved the Decoteau Area Structure Plan (ASP)[1], which covers 1,960 ha of this unique landscape area. An area prioritized for growth both locally and regionally, with clear requirements for higher density living, this Area Structure Plan, ASP, will accommodate 75,000 people in five distinct neighbourhoods. The challenge in planning this area was clear: create sustainable, vibrant communities in an ecologically complex, sensitive and interconnected landscape. The opportunity was equally apparent: unparalleled potential for ecological protection, community access to open space, and true integration of open space with other land uses - creating neighbourhoods with a strong sense of place.

This landscape is unique in Edmonton. The knob and kettle landforms visible here (the area in an outlier of the Beaver Hills ablation moraine to the east, which became a UNESCO Biosphere reserve in 2016) are not found anywhere else in the city. It is this hummocky terrain that supports the wetlands found in this area - in all, more than 25% of the wetlands remaining in Edmonton. Sensitive, highly complex, interdependent and regionally connected, these are the richest ecosystems found within Edmonton's boundaries, providing countless ecological services and critical wildlife habitat.

The Emerald Crescent: A Remarkable Green Network

[1] An Area Structure Plan is a statutory land use plan for previously undeveloped areas, required by Alberta's Municipal Government Act (MGA, Section 633(1)). An ASP must conform to a municipality's Municipal Development Plan (equivalent to an Official Plan), and is similar to secondary plans found in other provinces. ASPs in the Edmonton context generally identify a series of neighbourhoods over multiple sections of land. At a high-level, ASPs identify locations of different general land uses (residential, commercial, institutional, parks/open space, and recreational), how services and infrastructure will be provided, and the proposed sequence of development.

The Decoteau ASP, developed by Stantec on behalf of landowners and approved by City Council in 2015, advanced this vision. The central park system, named the ***Emerald Crescent*** (Figure 1), will provide a key ecological connection through Decoteau between Mattson Neighbourhood to the west and Strathcona County to the east, and a natural recreational amenity for more than 110,000 people. It will be a destination for all Edmontonians, connected by public transit, walking, biking, cross country skiing, and other active modes. It will be a place where community can thrive, through unique opportunities for gathering, placemaking and cultural celebration.



The Emerald Crescent concept was created through collaboration between school boards, and the City of Edmonton by arranging public land in a connected system--in keeping with principles of ecological landscape planning and a first for Edmonton. Spanning 75 city blocks (over 10 km), the ecological/recreational network in Decoteau consists of an integrated system of over 50 landscape elements of high-value natural and constructed wetlands, treestands, schools, parks, greenways and wildlife passages, supported by local and native plant species, edible landscaping, and local food systems. It is a network that prioritizes *ecological protection*, *active*

transportation and *ecological learning* and seamlessly integrates open space elements with the built environment to support diverse functions and create *vibrant, sustainable neighbourhoods*.

Figure 1: *The Decoteau open space network has been referred to as the **"Emerald Crescent"**.*

A Shared Vision and Collaborative Effort

Designing this vision required willingness and commitment on the part of many constituents: landowners and consultants; City administration; the school boards; the Province; and multiple community stakeholders. The Decoteau ASP took four years to develop and was the product of significant conversations across departments and disciplines (Figure 2).

The creation of Decoteau ASP was about *making connections and bridging gaps* - in knowledge and understanding of complex natural systems, between partners, in policy and tools, and eventually, on the landscape. Inspiration for the park system came from the North Saskatchewan River Valley and Ravine Park System or *Ribbon of Green* - a key landscape park that is dear to all Edmontonians.

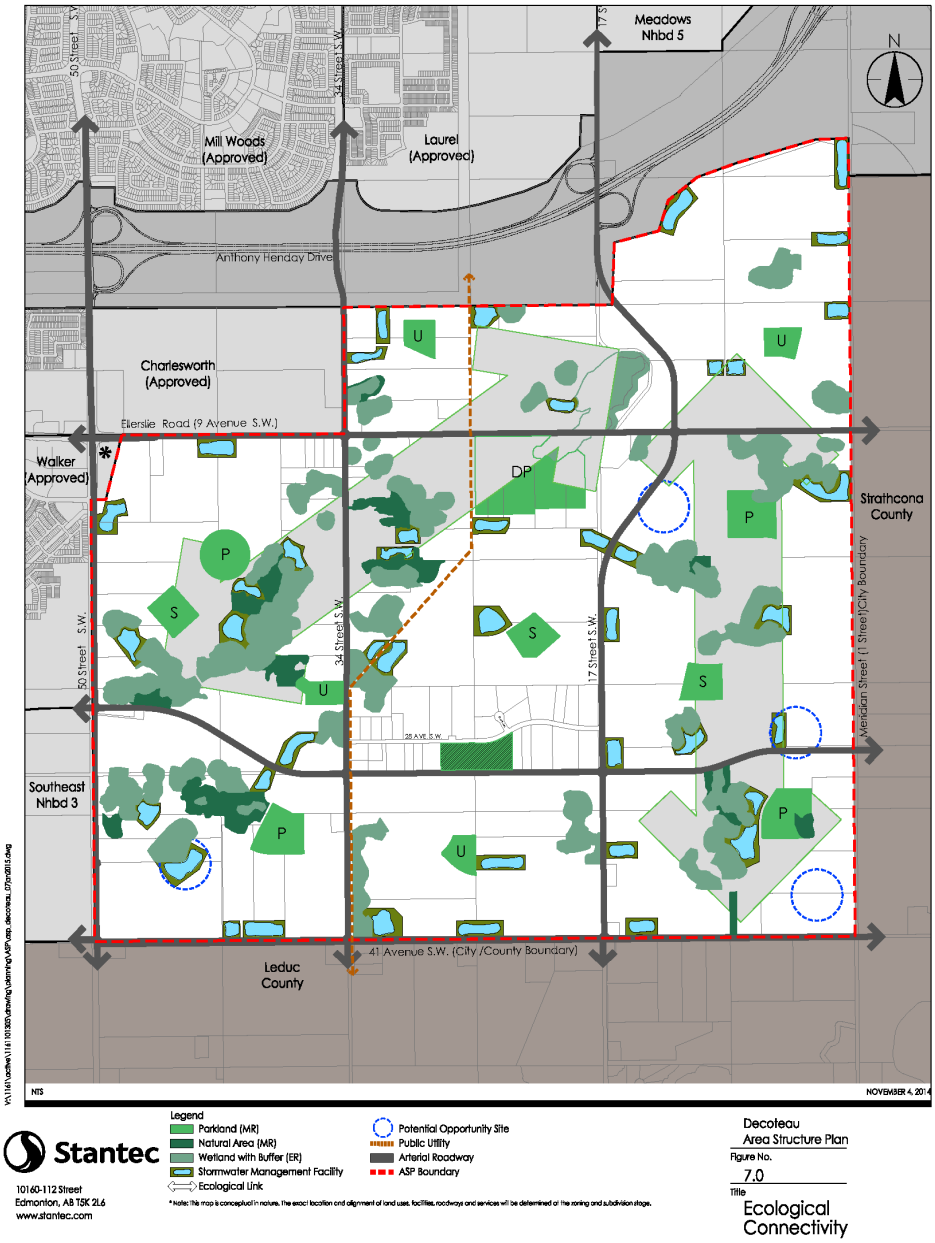


Figure 2. Decoteau Area Structure Plan - Ecological Connectivity and Open Spaces

Project Mandate

City of Edmonton, City Council has recently approved a new Open Space Policy the associated strategic direction for open space network planning called: *Breathe: Edmonton's Green Network Strategy* (Strategic Plan, Website and Overview Videos). The strategy Includes three high level themes (***ecology, celebration, wellness***), 15 functions and 10 strategic directions - including one that focuses on ecological integrity, so as to *"Preserve and enhance the ecological quality and connectivity of the green network"*. Undeveloped areas around the periphery of the city, as as the Decoteau area to the southwest, provide a remarkable opportunity for the

provision of ecological functionality to currently developing new neighbourhoods. By maintaining the natural state of these areas, surrounding neighbourhoods can benefit from the irreplaceable ecological and recreation opportunities of these intact, connected landscapes.

Expanding from initial plans outlined in the Decoteau ASP, the City must ensure protection and development of the green network that maintains the ecological function of the existing landscape with a connected network of open space throughout. ***The Emerald Crescent will be a place where people can recreate year-round; where residents and visitors can learn about and steward Edmonton's biodiversity; and where wildlife can move unhindered between core habitat areas.***

This project will be the first large project to implement the strategy outlined in *Breathe: Edmonton's Green Network Strategy*. The strategy provides for a great deal of flexibility in approaches and design thinking.

Terms of Reference:

These terms of reference (project objectives, specific tasks and deliverables) will be revised and refined with the group and the client in Week 1 of the term.

Project Objectives

1. Undertake a review of Edmonton's planning framework, with a focus on *Breathe: Green Network Strategy*, which guides the creation of the *Emerald Crescent* in the Decoteau Area Structure Plan;
2. Develop a qualitative survey instrument and work with City of Edmonton to analyse results, to help inform community preferences for the Emerald Crescent; and
3. Make visible and legible the green network connections among and between the cultural (social, recreational, educational) and natural (ecological, biodiversity, environmental) aspects of the Emerald Crescent in the Decoteau ASP.

Specifically, this project will ***develop three (3) scenarios*** to describe what the future green network might look like, through exploring ***planning and design solutions*** to the following questions:

Where are the key natural areas and wetlands to be preserved?
Where will the schools be located?

What innovative design approaches can be used for school sites and surrounding play fields?
Where are the critical locations and design approach for wildlife passages to maintain essential landscape and ecological connectivity?
What programming and design approaches could be used for parks?
How are the components of the green network connected?
What is the optimal balance of ecological, celebration and wellness functions?
What is the optimal balance of the 15 functions outlined in *Breathe*?
What is the best expression of the 10 strategic directions in *Breathe* that is in harmony with the landscape, citizen aspirations, and City Council direction.

Additional questions may arise during the initial phases of scoping this project with the client.

Proposed Deliverables:

Community Engagement - Develop a survey instrument to assess community understanding, interests, and preferences for the Emerald Crescent in Decoteau. The City will administer and host the survey on its existing platform - *Edmonton Insight Community* - that uses a standing group of citizens to get rapid community response. Other social media approaches are encouraged.

Final Submission - A single professional report (or similar product), to be determined with client) to include the primary and secondary site research, case studies and precedent research, all site analyses, concept designs, and planning recommendations to be supported by site photographs, selected design work, maps, plans, site-scale diagrams and other relevant graphics. The report should develop options for **3 scenarios** depicting the high-level concept design of the Emerald Crescent. In addition to the usual expectations of a literature review, background research, context and site analysis, the submission must adhere to any formatting requirements that may be required by the faculty advisor and client.

Graphic Panels - A series of presentation-quality graphic panels (professionally rendered, digitally printed and mounted if desired by client) to be used to communicate the project through visual means. The panels will depict the 3 scenarios outlined in the final report.

Video - Consider the development of a video as part of the visualization materials.

OR

3-D Model of the Emerald Crescent - A compelling visualization tool, the model will provide a broader understanding and appreciation for the new park system for this planning area. Working with the client, a single preferred scenario will be developed as a model.

The City of Edmonton will work with Ryerson to get permission to host a public exhibition of the work at City Hall.

Students will be encouraged to attend a long-weekend site visit to Edmonton, date to be determined with the client at the first meeting. Limited funds will be available to support student travel. The site visit is optional, but encouraged.

Preliminary References:

Potential Digital and Spatial Datasets

The following digital and spatial datasets and sources are available subject to some final licensing agreement checks by the City of Edmonton:

Title	Source	Format
Breathe: Edmonton's Green Network Strategy Open Space Inventory	City of Edmonton	GIS Data
Urban Primary Land Vegetation Inventory (2015 UPLVI)	City of Edmonton	Shape files & PDF Interpreter's Manual
2015 LiDAR, Bare Earth & Full Feature	City of Edmonton	Point Cloud .LAS, 1m grid ASCII
2016 Orthoimagery	City of Edmonton	Raster Imagery
Environmental Sensitivity Mapping	City of Edmonton	Shape files & draft final report
Stormwater Management Facilities	City of Edmonton	GIS Data
Aerial imagery for: - 1950: May (1:40,000) - 1962: May (1:30,000) - 1977: June (1:30,000) - 1980: May (1:60,000)	Province of Alberta, Photo Archives	LizardTech MrSID Image
AltaLis Regional & Provincial Data	AltaLis	Shapefile

EXISTING POLICIES AND REPORTS

The project team may refer to documents, studies and initiatives previously prepared and undertaken by the City and other levels of government. The project team may review and ensure the Emerald Crescent's alignment with existing documents, including but not limited to the following documents:

- *The Way Ahead*
- *The Way We Grow*, Edmonton's Municipal Development Plan (2010)
- *The Way We Move* (2009)
- *The Way We Live* (2010)
- *The Way We Green* (2011)
- *The Way We Prosper* (2013)
- *Urban Parks Management Plan* (2006)
- *Breathe: Edmonton's Green Network Strategy* (2017)
- Policy C594: *Open Space Policy*
- *Drainage Services Master Plan 2015-2024: Aspirational Plan*
- *Drainage Services Master Plan 2004-2014*U (2004)
- *Decoteau Area Structure Plan* (2015)
- *Natural Connections Strategic Plan*
- Policy C512: *Environmental Policy*
- Policy C431: *Natural Area Systems Policy*
- *Wildlife Passage Engineering Design Guidelines*
- *Urban Forest Management Plan*
- Policy C456A: Corporate Tree Management Policy
- *Zoning Bylaw*, 12800
- *fresh: Edmonton's Food and Urban Agriculture Strategy*
- *Parkland Bylaw C2202*
- *Stormwater Quality Strategy*
- *Proposed Walkability Strategy for Edmonton*
- *Designing New Neighbourhoods Guidelines* and Policy C572: Designing New Neighbourhoods
- *Edmonton Low Impact Development Best Management Practices Design Guide*
- *Edmonton Metropolitan Region Growth Plan (2017)*
- Alberta Recreation Survey Results (2013)
- Framework for Recreation in Canada 2015: Pathways to Wellbeing (2015)
- Existing and current results of community engagement efforts.
- Edmonton Winter City Design Guidelines

Designing the

Emerald Crescent

The Emerald Crescent is Edmonton's new backyard: a place to breathe, connect and explore.

"The Emerald Crescent will be Edmonton's newest and best connected parks and open space system. A natural gem in the Decoteau neighbourhood where water, wildlife and people will flow seamlessly across the rolling terrain - a park network worth discovering."

The City of Edmonton is prioritizing its parks and open space strategy as the foundation for the development of the new Decoteau community. The local open space network has been named **the Emerald Crescent** and forms a 10 km connected stretch of parks, wetlands and natural areas that will connect the five new neighbourhoods that have been proposed within the Decoteau Area in Southeast Edmonton.

The City of Edmonton has partnered with a team of eight Master of Planning students through Ryerson University's School of Urban and Regional Planning graduate studio (Studio Team) to develop a vision, guiding principles, and three mutually complementary scenarios that will inform the future planning and design of the Emerald Crescent in the Decoteau Area.

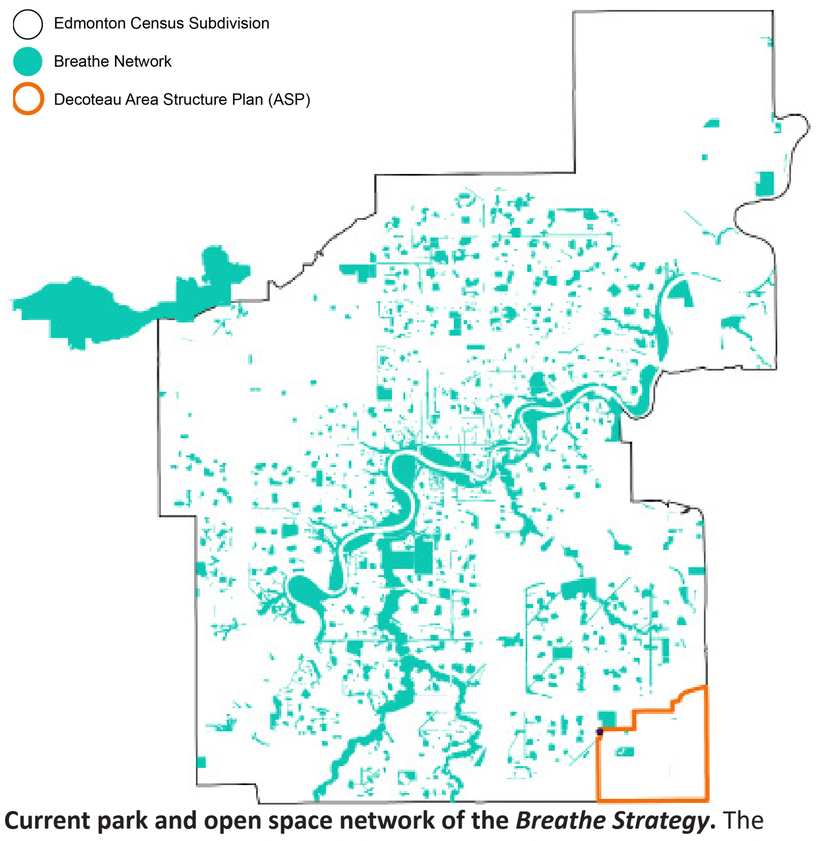
Identifying and conserving the ecological network before development presents an opportunity for the City of Edmonton to apply the *Breathe Strategy* at a neighbourhood scale.

The Studio Team identified six guiding principles that will offer important design considerations and guide the focus of the three scenarios that all incorporate the design principles but in different ways.

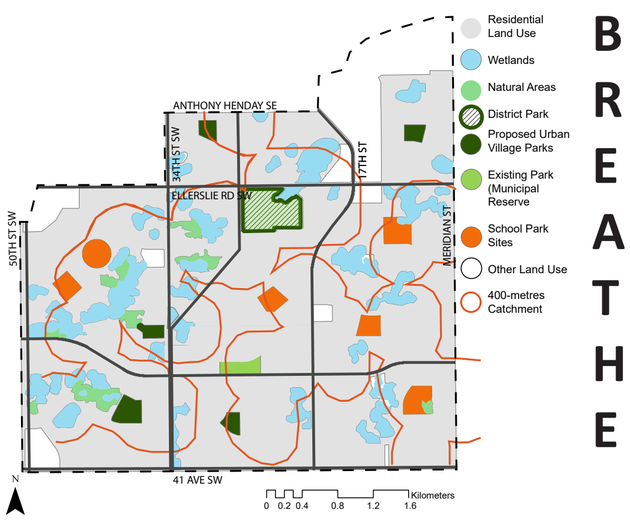
Wetlands in the Decoteau Area.

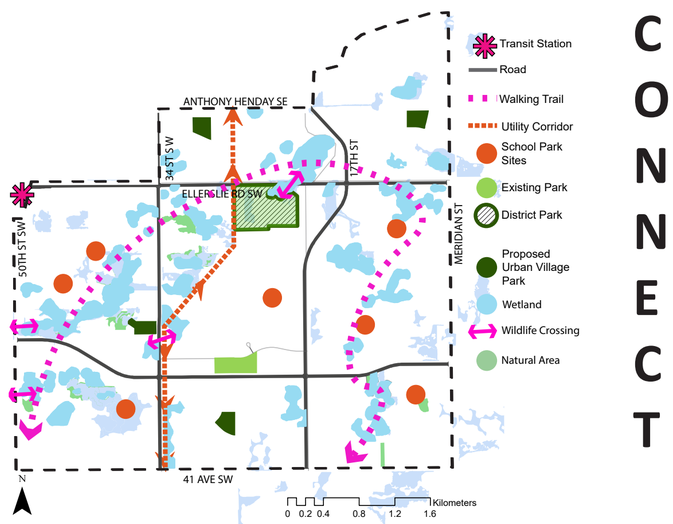
Wetlands in the Decoteau Area.

Emerald Crescent in Relation to Edmonton



Current park and open space network of the *Breathe Strategy*. The Decoteau Area is 1,960 ha including many significant environmental features not yet included in the Breathe Strategy. The community will continue to grow from a population of 280 today to 75,000 over the next 30 years, highlighting the need for planning the parks and open space network now.





Design with Nature focuses on inspiring innovative development techniques that enhance the unique natural environment

Discover supports actions that will instill a sense of place that sparks excitement and pride for residents and visitors alike.

Flow focuses on planning interventions that are predicated on seamless movement across the Emerald Crescent

Adapt integrates flexibility into design to ensure the Emerald Crescent responds to the dynamic changes in the environment

Destination focuses on designing key nodes for celebration, wellness, and natural spaces

Inclusivity promotes design opportunities to create an inviting and accessible park system

Designing the Emerald Crescent

Place to Breathe

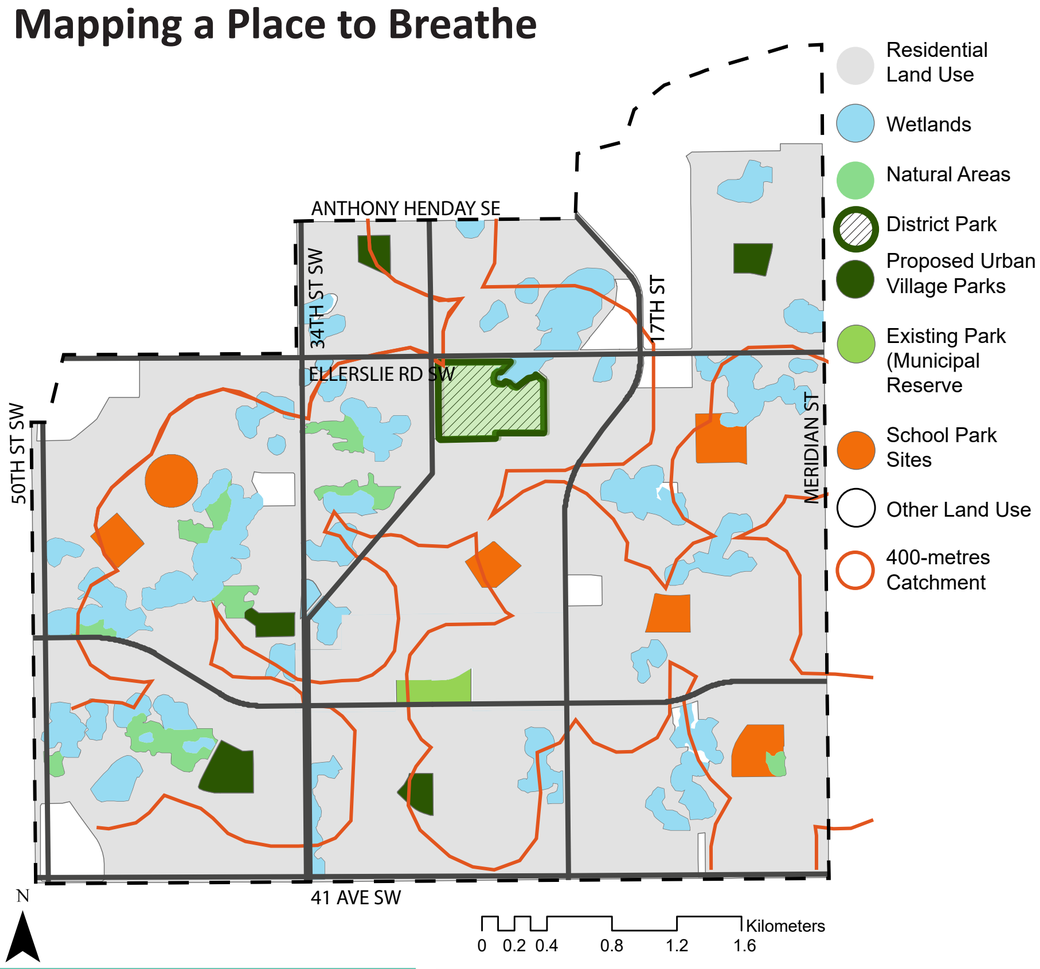
Nature at your doorstep: for people to celebrate and embrace their natural landscape.

"Decoteau will be a community where everyone has nature at their doorstep. An area in Edmonton for people to celebrate and embrace the unique, natural landscape."

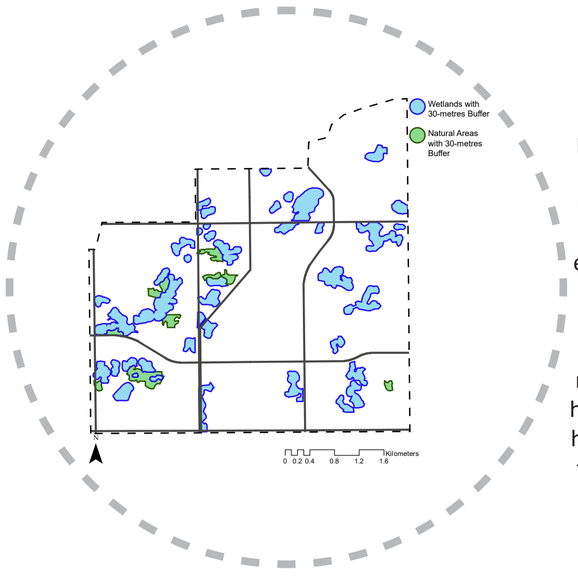
A Place to Breathe focuses on the two main guiding principles of **Design with Nature** and **Destination**. This scenario is all about designing new communities with the natural environment as the starting point and foundation to build development around and in consideration of important ecological features. These features should be protected, and ecological function should be maintained and enhanced through incoming development.

The following highlights three parameters that will help to translate the vision and guiding principles from conceptual ideas into action.

Mapping a Place to Breathe

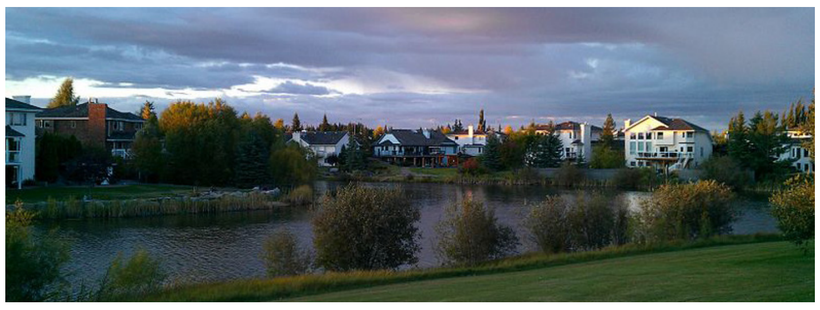


Buffers



Edmonton's Environmental Reserve Guidelines places a minimum 30 ms buffer from the wetlands edge for the purpose of pollution prevention. This restriction on development helps to maintain the ecological health of these sensitive habitats and the wildlife that depends on them.

Environmental Reserves and Buffers



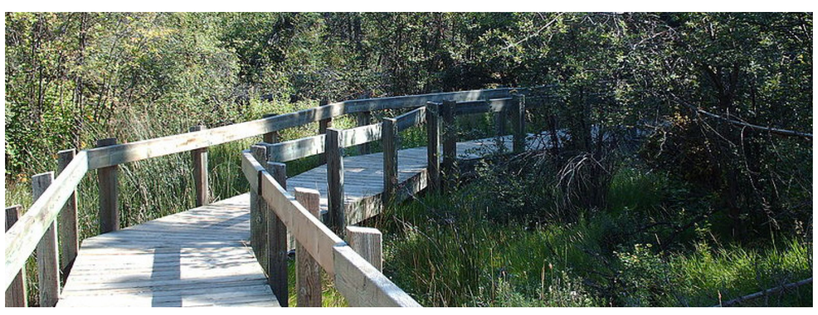
Ensuring **Low Impact Development** methods are used in the building, design and siting of new communities within the Decoteau Area will help maintain natural water movement and embrace natural systems that are present within the area.

Iconic Spaces

Within the Emerald Crescent, the CIty of Edmonton has identified a District Activity Park within the Central Neighbourhood Unit. This site is intended to be a key celebration node for residents of the new Decoteau Area as well as draw in visitors from across Edmonton.

Children's Playground, Malmö, Sweden

Encouraging the usage of parks space in the winter time is engrained in Edmonton's **Winter Design Guidelines** which state that "public spaces support outdoor winter programming, recreation and everyday winter life". Public art provides cultural, social and economic value to public spaces.



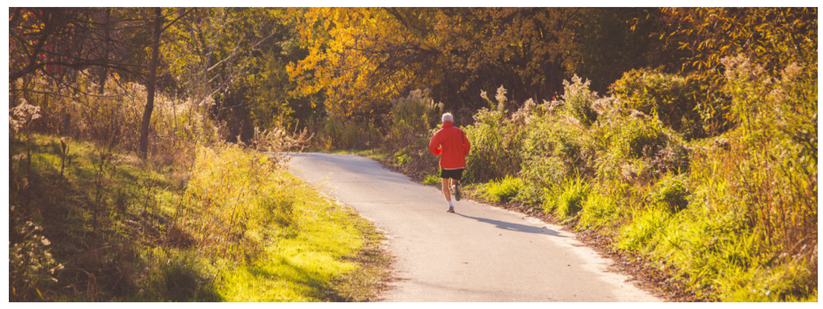
Trail development, boardwalks, and signage can guide users along established trails and help redirect passive human activity from sensitive areas. The successful use of boardwalks in wetland habitats has been demonstrated at Evergreen Brickworks in Toronto's Don River Valley.

Across the Emerald Crescent network, both programmed and unprogrammed spaces should be considered. This will allow for the design of **Community Hubs** and the ability for neighbourhood groups and Community Leagues to create their own special spaces.

Nature Close to Home

One important element acknowledged within the Breathe Technical Analysis is the value of having a park or open space within an approximately 15-minutes walk, or 400 ms. The Decoteau Area should embrace this principle and ensure that 100% of residents have easy access to nature.

Parks and Surrounding Area



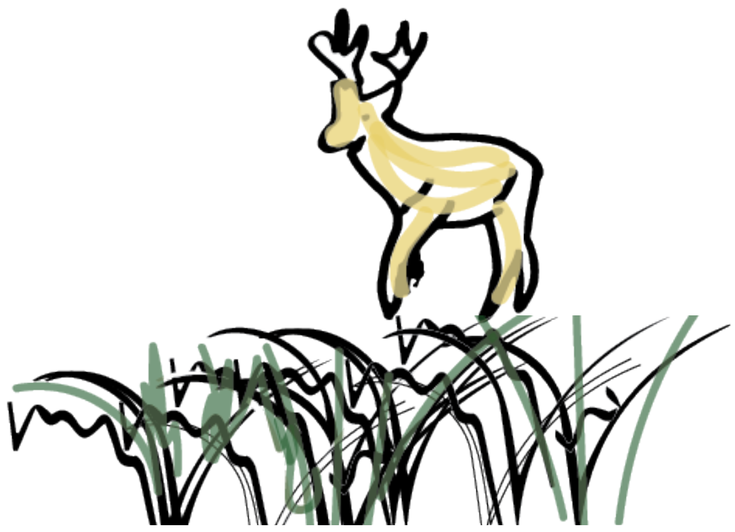
The benefits of having access to nature are well documented, and can have positive impacts on mental health and well-being. By having **access to natural areas and green environments**, people have demonstrated the development of stronger neighbourhood and social ties, which will be important elements of building a new community within Decoteau.

Having access to green or natural areas offer residents a variety of different experiences and programming activities. Respondents from an Insight Survey conducted on the area felt strongly about having access to nature within a **10-minutes walk** from their home for reading a book or visiting their local community garden.

Designing the Emerald Crescent

Place to Connect

Weaving it together: a *seamless integrated network for animals, people, and water to move freely.*

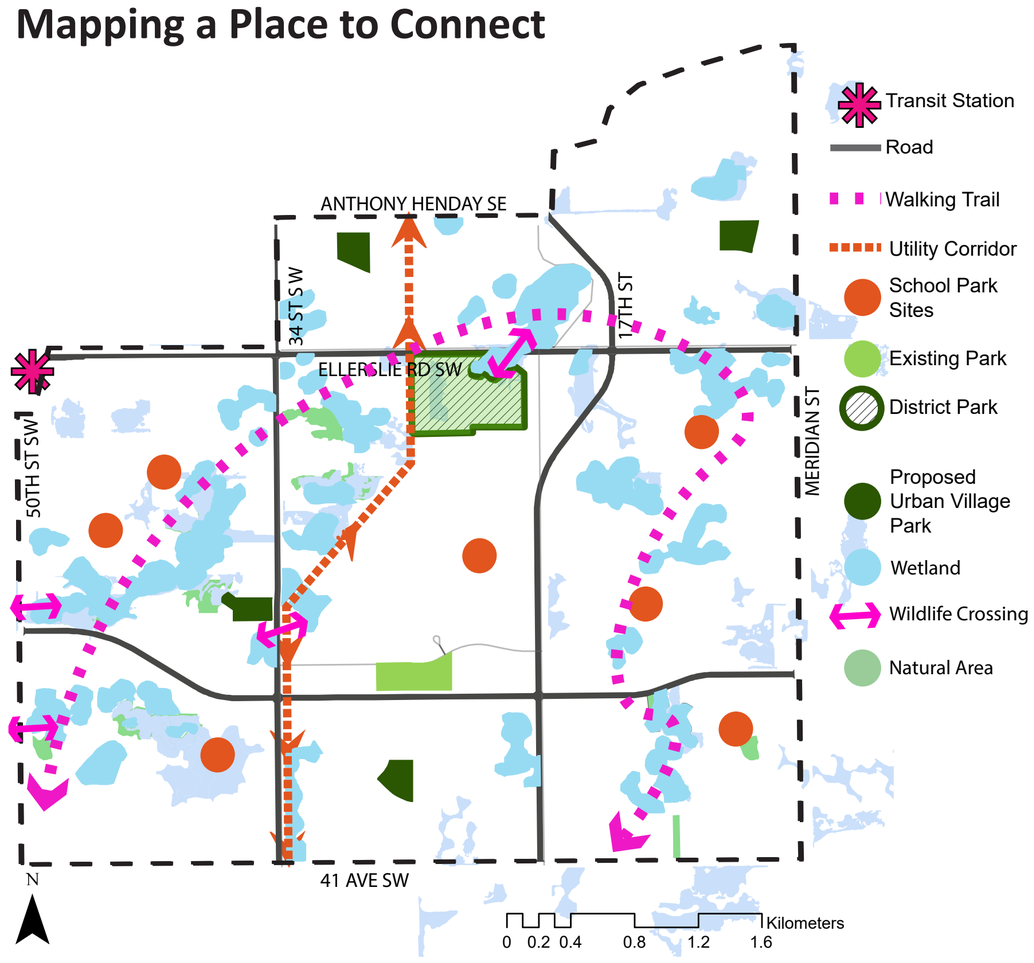


"The Emerald Crescent is envisioned as a seamlessly integrated network that allows for easy movement and connections for people, wildlife and water within the Emerald Crescent and beyond."

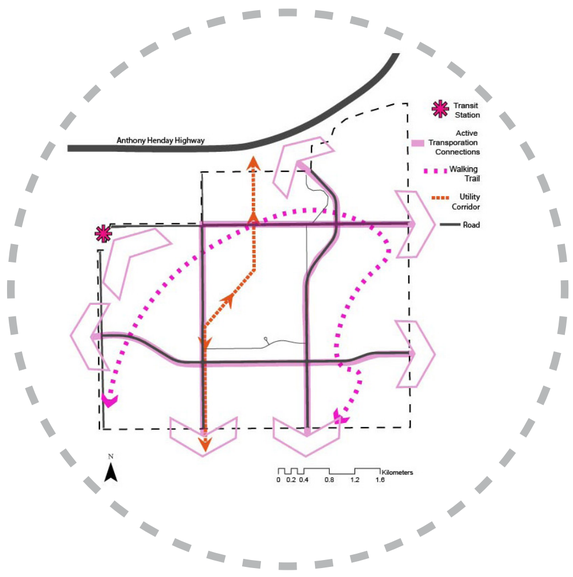
This scenario embodies **Flow** and **Adapt** as the two main guiding principles. These principles showcase the Emerald Crescent as a catalyst in creating a connected, integrated, and multi-functional landscape for people, wildlife and water. Even though Decoteau is an area with formal boundaries, people, wildlife, and water are not confined to them. This scenario emphasizes the importance of flow, movement and multi-functionality in order to allow for flexibility and resiliency to changes over time.

The following highlights three parameters that will help to translate the vision and guiding principles from conceptual ideas into action.

Mapping a Place to Connect



Human Connections



The Decoteau community should be designed to allow for the safe and efficient movement of people both inside and outside the boundaries of the Area Structure Plan. Active modes of transportation for both commuting and recreational purposes should be emphasized.

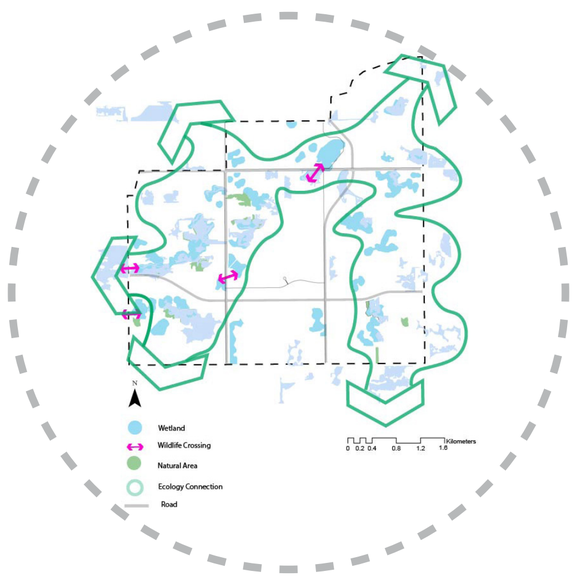
Encouraging Active Transportation

Multi-Functional Spaces

It will be important for the parks and open space system to become a community asset, both for recreation and ecology, as well as green infrastructure. These spaces can be designed in a multi-functional way that will enable opportunities for connection and celebration, but also accommodate elements of living green infrastructure (e.g. storm water retention).

Roper Pond Constructed Wetland, Edmonton

Wildlife Connections



Growth and development in the Decoteau community should occur in tandem with the preservation of the ecological network. It is therefore imperative that planning and design interventions for the Emerald Crescent consider both the flow of wildlife and hydrology through the landscape.

Movement of Wildlife

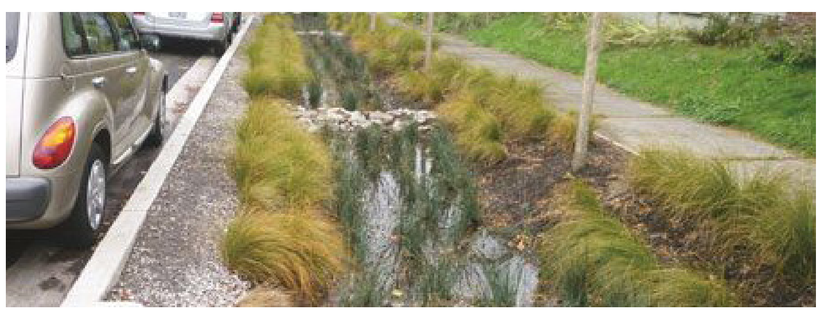
The existing **utility corridor** provides a significant north-south connection in the Decoteau community. There are numerous opportunities associated with this piece of infrastructure. By activating the utility corridor in an intentional way, it can become a major connector in the heart of the community.

School sites were identified as keys areas that could serve many different functions. Schools should be designed to serve both an academic and ecological function. A unique opportunity exists to **collaborate with the schools** to proactively plan for a multi-functional design.

Edmonton's Wildlife Passage Engineering Design Guidelines emphasize the need for **wildlife connectivity**. These should be highlighted in order to accomodate wildlife. There are various scales of wildlife crossings that could help to maintain habitat connectivity, including culverts, over and underpasses and simple interventions like curb cuts.

The presence of the planned transit hub at the corner of 50th St SW and Ellerslie Rd presents an opportunity to encourage residents to use **active transportation** as part of their daily commute to work. The provision of amenities, such as bike lockers, will help to make the prospect of cycling at the first and last leg of their commute more appealing.

The utility corridor offers an opportunity for both human connections and other functions, such as a **community garden**, that could be used for local food production. This is aligned with the policy goals mentioned in the City Wide Food and Agriculture Strategy.

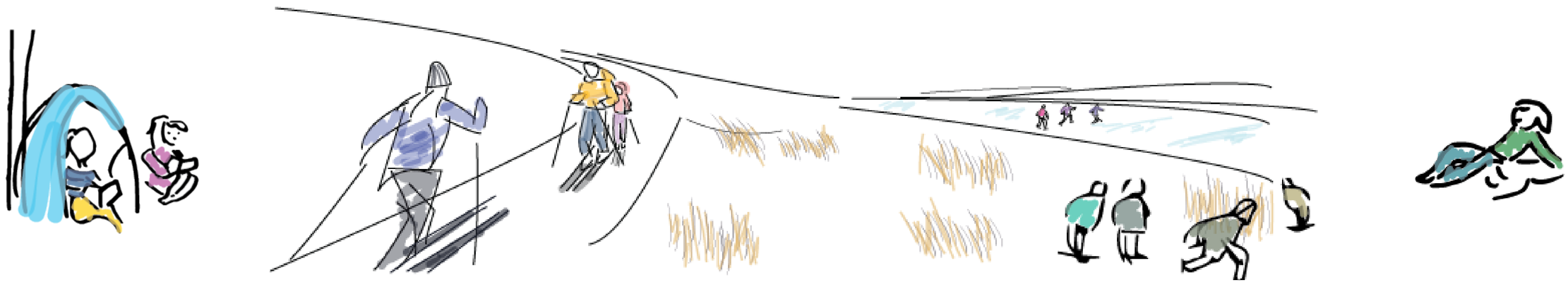


Development must occur in a way that does not disrupt the natural flow of surface water which feeds the wetlands. **Bioswale planters, and medians** help to reduce the volume of stormwater runoff, promote pollutant uptake through soil and vegetation, and increase groundwater recharge.

Designing the Emerald Crescent

Place to Explore

Getting to know your landscape: stay curious and engage with the landscape all year long.

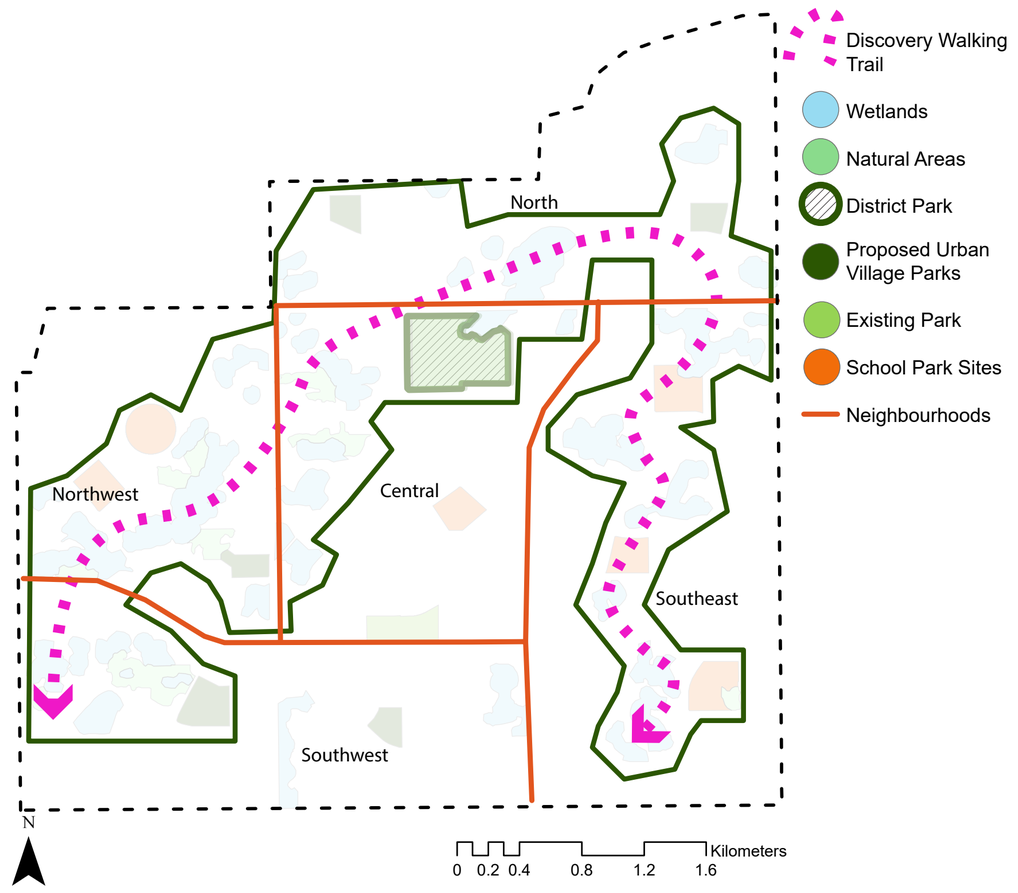


"The Emerald Crescent will be a place that offers multiple opportunities for staying curious, exploring, and engaging with your landscape - all year long."

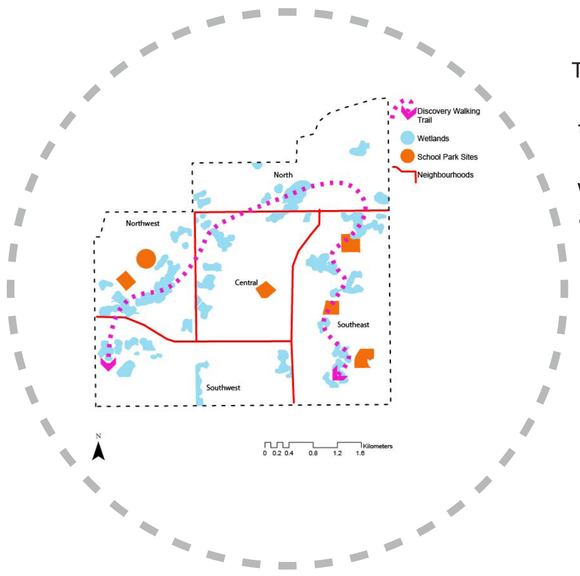
This scenario emphasizes **Inclusivity** and **Discover** as the main guiding principles. It is predicated on the idea that providing people with opportunities to explore their landscape will foster an appreciation of the intrinsic value of these spaces. These spaces therefore need to include thoughtful design interventions that **balance ecological preservation objectives with the ability to interact with the natural environment**. By allowing people to engage with the Emerald Crescent, they will be more likely to advocate for the protection of environmentally sensitive areas, thus becoming stewards of their community.

The following highlights the three parameters that will help to translate the vision and guiding principles from conceptual ideas into action.

Mapping a Place to Explore



Nature as Your Playground



The planned school sites are in close proximity to significant ecological features, such as wetlands. This presents an exciting opportunity to encourage experiential learning. Providing access to natural elements, such as wetlands and plant life, will help evoke creativity and imagination in school children.

Discovery Walking Trail

The Humber Arboretum School Program in Toronto, Ontario is a notable precedent that offers a **"hands-on, environmental education"**. Through this program, kids are educated in the areas of recycling, ecological stewardship, and environmental monitoring.

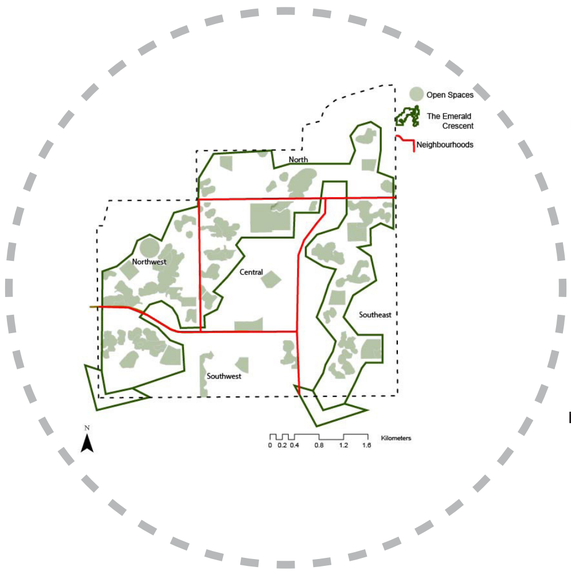
Getting to Know Your Neighbourhood

The presence of a significant trail network will help to make the Emerald Crescent a legible, indexed landscape that can be easily navigated by residents and visitors. Inspiration for the creation of this trail can be drawn from the Bruce Trail and the Don Valley Arts Trail.

Bruce Trail, Ontario

The Bruce Trail in Ontario connects over 400 kms of parks and open spaces for hikers to enjoy across a regional scale. It is Canada's longest and oldest footpath. This **trail system** is an important act of stewardship for the communities it intersects. There are over 1,500 volunteers who help care for, steward, and protect a section of the Bruce Trail.

Cohesive Community Identity



Decoteau will encompass five neighborhoods, and the network of parks and open spaces that make up Emerald Crescent will play a significant role in creating a cohesive community identity. The Emerald Crescent runs through all of the proposed neighbourhoods and will be a shared connected park system for all residents to enjoy.

Emerald Crescent Network

The Toronto ravines offer a significant example of how a connected natural system can foster a sense of **inclusion and shared identity**. Furthermore, dedicated community events, such as the Ice Castle Festival in Edmonton, provide opportunities for placemaking and community building.

Similarly, in the Evergreen Brickworks Children's Garden, children are encouraged to participate in unstructured, loose parts play, with natural elements. This allows for **child-directed creativity** and healthy risk-taking in play.

Incorporating both **iconic art and beautiful trails**, the Don Valley Arts Trail in Toronto is a curated series of temporary public artworks taking place along the Don River. Artists are invited to create site-specific projects that speak to the many histories and present-day realities of the Don Valley and its surrounding communities.

Edmonton's *Winter Design Guidelines* understand that winter is a core part of Edmonton's identity. In order to realize the full return on our investments, development and public infrastructure **projects should work year-round**, not just for summer conditions. Ottawa celebrates its winter season by putting on events to engage the community.